BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the PUBLIC UTILITIES COMMISSION Instituting a Proceeding to Investigate the Implementation Of Feed-in Tariffs	)	PUC DOCKET NO. 2008-0273

SOPOGY, INC. COMMENTS ON PROPOSED SCHEDULE FEED-IN-TARIFF TIER 3 TARIFFS AND AGREEMENT

AND

CERTIFICATE OF SERVICE

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SOPOGY, INC. COMMENTS ON PROPOSED SCHEDULE FEED-IN-TARIFF ("FIT") TIER 3 TARIFFS AND AGREEMENT

SOPOGY, INC., a Delaware corporation (the "**Company**"), respectfully submits its Comments on Proposed Schedule FiT Tier 3 Tariffs to the State of Hawaii Public Utilities Commission (the "**Commission**") pursuant to the Commission's Decision and Order, dated September 25, 2009 (the "**D&O**"), and the Commission's Order Setting Schedule in Docket No. 2008-0273, dated October 29, 2009, directing the parties to the docket to file comments on Proposed Schedule Tier 3 Tariffs.

Respectfully submitted.

DATED: Honolulu, Hawaii, May 20, 2010

PAMELA ANN JOE, ESQ.
VP of Corporate Development and General Counsel, Sopogy, Inc.

SOPOGY COMMENTS ON PROPOSED TIER 3 SCHEDULE FIT

On April 29, Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc. and Maui Electric Company, Limited (collectively, the "**HECO Companies**," and any respective HECO Company, the "**Utility**"), submitted to the Commission, under cover letter (the "**HECO Cover Letter**"), its proposed Tier 3 Schedule FiT (including tariff rates) for each of Oahu, Hawaii and Maui (collectively, "**HECO's Proposed Schedule FiT**") and a Proposed FiT Tier 3 Standard Agreement ("**HECO's Proposed PPA**")[1]. The HECO Companies also circulated spreadsheets supporting development of rates contained in HECO's Proposed Schedule FiT, based upon a Levelized Cost of Energy Model developed by Black and Veatch, as adjusted by the HECO Companies' consultant, Energy and Environmental Economics (E3), to address Hawaii specific issues (the "**Tier 3 LCOE Model**"). In HECO's Proposed Schedule FiT, HECO, included CSP technology rates of $0.316 per kilowatt-hour ("**kWh**"), assuming a full 35% Hawaii Renewable Energy Investments Tax Credit under HRS Section 235-12.5 ("**HI REITC**") benefit, and $0.336 per kWh, assuming a 24.5% refundable HI REITC benefit (collectively, "**HECO's Proposed Tier 3 Rates**")[2].

Pursuant to the D&O, the HECO Companies held a Tier 3 workshop at which the parties discussed Tier 3 Schedule FiT issues. The HECO Companies also distributed the Tier 3 LCOE Model to all of the parties to facilitate collaboration in the development of Tier 3 tariff rates. On March 16, 2010, the HECO Companies circulated informally its proposed Tier 3 Schedule FiT and its proposed Tier 3 Schedule FiT Standard Agreement. The Company also participated in a conference call with representatives from the HECO Companies and E3 to discus certain concentrating solar power ("**CSP**") specific issues. On March 30, 2010, the Company submitted informal comments on the informal proposed Tier 3 Schedule FiT and proposed Tier 3 Schedule FiT Standard Agreement, many of which were reflected in HECO's Proposed Schedule FiT and HECO's Proposed PPA. Finally, pursuant to the D&O, the parties participated in a Settlement Conference on April 21, 2010.

In general, the Company appreciates the revisions made to HECO's initial proposed Tier 3 Schedule FiT and Tier 3 Schedule FiT Agreement as part of the informal collaborative process, and notes that a number of the Company's concerns have already been addressed by the HECO Companies at this point. There are, however, still a number of issues outstanding upon which the Company comments herein.

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[1] The Company notes that Clean Energy Maui LLC and Zero Emissions Leasing LLC also submitted a proposed Tier 3 Schedule FiT and Standard Agreement. The Company's comments contained herein, however, focus primarily on the HECO Companies' proposed Schedule FiT and Standard Agreement.

[2] The Company is in the business of concentrating solar power, specifically, solar thermal trough technology has thus refrained from commenting on the photovoltaic (PV), wind and in-line hydro specific aspects of HECO's Proposed Schedule FiT.

1) Comments on HECO's Proposed Tier 3 Rates

The Company has reviewed HECO's Proposed Tier 3 Rates and the Tier 3 LCOE Model and believes the following adjustments are necessary in order to arrive upon accurate levelized costs of energy (LCOE) for CSP technology that would incentive CSP projects and accelerate the "acquisition of renewable energy," *D&O*, at 1.

a) Treatment of State of Hawaii Renewable Energy Investment Tax Credit ("HI REITC") in the Tier 3 LCOE Model

The Tier 3 LCOE Model, 24.5% scenario CSP trough tabs, requires adjustment because they failsto treat the HI REITC provided for in Hawaii Revised Statutes ("**HRS**") Section 235-12.5, if taken as a refund, correctly. The Tier 3 LCOE Model, CSP trough tabs, record a $500,000 HI REITC benefit in the 24.5% tax refund scenario. In the case of a tax refund, the HI REITC amount must be reduced by 30% pursuant to HRS Section 235-12.5 in order to take the refund. The HECO Companies recognized this requirement in the HECO Cover Letter by stating "a taxpayer may elect to receive 70% of the 35% REITC as a refund," *HECO Cover Letter*, at pp. 19. As such, the $500,000 recorded in the CSP trough tax refund case is overstated. The before tax-affected amount of the HI REITC should be 70% of $500,000, or $350,000. The Company has attached hereto, as **Attachment 1**, the Tier 3 LCOE Model with this correction made for the Commission's consideration.

b) Federal Renewable Energy Investment Tax Credit ("Federal ITC") and Modified Accelerated Cost Recovery System ("MACRS") Basis

Earlier versions of the Tier 3 LCOE Model based the Federal ITC upon the entire CAPEX of each facility. The Company and other parties raised the fact that certain interconnection equipment and related capitalized costs were not includable for purposes of the Federal ITC or MACRS. The HECO Parties appropriately adjusted the Tier 3 LCOE Model to remove interconnection related costs from the basis for purposes of calculating the Federal ITC and the MACRS benefits, and reflect the appropriate 20-year depreciation schedule. The Tier 3 LCOE Model requires a further similar adjustment, however, in that certain other non-interconnection related CAPEX items are similarly ineligible, such as clearing (which could be costly given the thick keawe trees and similar foliage covering much of the available Ag land on the Island of Oahu) and grading of the land (which will likely be a consideration for most Tier 3 sized projects as this size would require ground mounting on undeveloped agricultural land), structures such as a control house (to house the facility and utility controls, as well as a facility operator), and certain security measures such as fencing for the facility and the utility (*see* Attachment B to HECO's Proposed PPA, requiring a "separate, fenced area" specifically for the Utility's use). Based upon the information provided by the HECO Companies regarding interconnection related costs and the Company's experience with prior projects, the Company

estimates the total amount of non-qualified costs (including the interconnection costs already accounted for by the HECO Companies) to equal approximately 10% of the entire CAPEX of the project. Therefore, the economic life percentage allocations set forth in the Tier 3 LCOE Model amount (upon on which the Federal ITC and MACRS are based) require further adjustment to reflect proper application of the Federal ITC and MACRS benefits. An appropriate adjustment is to allocate 5% of the Plant as depreciable over 15-years (and not eligible for the Federal ITC or MACRS benefits) and 5% (which percentage includes interconnection-related costs) as depreciable over 20-years (and not eligible for the Federal ITC or MACRS benefits).[3] The Company has attached hereto, as **Attachment 2**, the Tier 3 LCOE Model with this adjustment to properly apply the Federal ITC and MACRS benefits, as well as the adjustment made to accurately capture the HI REITC benefit (discussed above), when taken as a refund, to demonstrate the resulting LCOE from these two corrections.

It is important to note that some authorities believe that the Federal ITC, when taken as a grant instead of at tax credit, might be taxable for State of Hawaii general excise tax purposes by the State of Hawaii. As there has been no clear guidance issued by the State of Hawaii Department of Taxation ("**DOTAX**") on this issue and the Company is not aware of any current effort by the State of Hawaii Department of Taxation to collect general excise tax on any Federal ITC grant amount received, the Company is not proposing an adjustment to the Tier 3 LCOE Model at this time. Rather, the Company wishes to raise this issue should an adjustment be required in the future.

c) Concentrating Solar Power Technologies

In developing its proposed Tier 3 rates for CSP technologies, the HECO Companies have modeled the levelized cost of energy for the following three technologies: CSP trough, Stirling dish and concentrating photovoltaic (CPV). To generate a CSP rate, the HECO Companies took the midpoint of the rates generated for each of these three technologies. The Company feels it is not appropriate to include concentrating photovoltaic (CPV) in the CSP technology category, but rather, it may be more appropriate to include CPV in the PV category, if at all (as it is arguable as to whether CPV is commercial enough to be included in the Schedule FiT at this time).[4]

Industry sources uniformly categorize CPV as a photovoltaic technology in cases where a CSP versus PV distinction is made. According to the National Renewable Energy Laboratory ("**NREL**"), "CSP systems use the sun as a heat source" and not a light source as would be for PV technology, http://www.nrel.gov/learning/re_csp.html (emphasis added). NREL also states the three main types of concentrating solar power system are linear concentrator (which include

[3] Note, any clearing, grading or similar land costs are likely not deductible at all, but since there is no category for these costs built into the Tier 3 LCOE Model, these have been included in the 20-year tier.

[4] The Company raised this issue informally as a concern, but there was some confusion as to whether inclusion of CPV in the CSP technology category was mandated by the D&O (which, the parties have subsequently agreed, it is not). As such, the issue remains unresolved.

parabolic trough and linear Fresnel reflectors), dish/engine, and power trough systems - CPV is not included in this technology list. The source of energy for each of the CSP technologies listed is the sun's heat, hence CSP technologies are often referred to as "solar thermal" technologies. Neither CPV nor PV technologies use thermal energy. Rather, both convert sunlight to electricity through the transformation of electrons in the atoms of PV cells to become part of the electrical flow in an electrical network or circuit. This difference between CSP and CPV/PV is further discussed by the CPV Consortium, which states on their Frequently Asked Questions Document, attached hereto as **Attachment 3**, *available at* http://www.cpvconsortium.org/resources/index.php#FAQ, "CPV is sometimes confused with CSP – Concentrating Solar Power. Whereas PV converts light energy directly to electricity, CSP systems utilize heat from the system to generate power in a traditional steam engine power plant environment," *Id.* The HECO Companies themselves acknowledge the fundamental solar thermal characteristic of CSP technologies in HECO's Proposed Schedule FiT by stating that "CSP is defined as a Facility that uses mirrors or lenses to concentrate the **sun's heat** in order to generate electricity," *HECO's Proposed Schedule FiT*, section B(1)(c) (emphasis added). As such, CPV should not be included in the CSP category because it is not a solar thermal technology and CSP technologies are uniformly defined by their use of the sun's *heat* rather than the sun's *light*. Rather, it is more appropriate to include CPV in the photovoltaic technology category for purposes of this FiT regime, if at all.

d) Capacity Factor

In developing HECO's Proposed Tier 3 Rates, HECO utilized capacity factors of 19% and 21% in its CSP trough technology scenarios. The Company is of the position that the appropriate capacity factor range for a "typical project" using CSP trough technology at a location with average direct normal irradiation (DNI) levels for the Island of Oahu is 15-17%. This assumes the solar field portion of said facility is sized based on the optimal operating parameters of the respective power generation unit – i.e. a 1:1 solar field design ratio.

In the Company's filing on January 21, 2010, regarding the proposed FiT Tier 1 and 2 rates ("**Sopogy's Tier 1 & 2 Comments**"), the Company provided evidence to support that "the actual estimated capacity factor for CSP in the State of Hawaii falls between 15-17% assuming the facility has no storage equipment," *Sopogy's Comments on Proposed Tier 1 and Tier 2 Rates*, at 44. As stated in Sopogy's Tier 1 & 2 Comments, CSP technology requires direct normal irradiation (DNI), and DNI levels in Hawaii are significantly lower than those of the Southwest United States areas, such as Arizona and Nevada, where most CSP power facilities are currently operating.

The Company included in Sopogy's Tier 1 & 2 Comments, as Attachment 2, a study co-authored by Sandia National Laboratories and the National Renewable Energy Laboratory ("**NREL**") on the 1MW Saguaro Solar Trough Plant which provided details of annual production and capacity factor. In 2007, the Saguaro plant was predicted to operate at a 7.8% efficiency level and produce approximately 2000 MWh/year, which results in a capacity factor of 23%. As stated in Sopogy's Tier 1 & 2 Comments, the DNI at Honolulu International Airport is 1.85 MWh/m^2/year compared to DNI at the Saguaro facility of 2.5 MWh/m^2. Given the same

specifications, if a facility identical to the Saguaro facility were located near the Honolulu International Airport, this facility would produce 1, 486 MWh/year, resulting in a capacity factor of 16.9%.

Similarly, during the SolarPaces convention in 2008, Acciona Solar Power, provided a presentation entitled, "Solar Steam at Nevada Solar One." During this presentation, Acciona Solar Power stated that the annual production of Nevada Solar One was 130,000 MWh with an annual DNI in Boulder city of 2.6 MWh/m^2. Given identical physical specifications and the current efficiency rate of Nevada Solar One, this same CSP facility would produce approximately 92,500 MWh/year on Oahu based upon at the DNI at Honolulu International Airport of 1.85 MWh/m^2. If this projected 92,000 MWh/year of the Nevada Solar One plant located on Oahu is divided by 560,640 MWh (product of 64 MWe multiplied by 8760 hours), it results in a capacity factor of 16.49%.

As the foregoing demonstrates, capacity factors for CSP facilities in Hawaii will be significantly lower than in other locations given Oahu's lower average DNI levels.

On the other hand, it is possible to achieve higher capacity factors if the solar field portion of a facility is over-sized – i.e. beyond the specified engine operating parameters (for example, a 1:1.2 or 1:1.5 solar field design ratio). Such would increase the installed cost, land requirements, operating and maintenance cost etc., of the facility. To this end and at the HECO Companies' request, the Company provided the following scenarios based upon the Company's own technology.

Location	Schofield Barracks	Kahuku (average)	Kalaeloa	
Annual DNI	1718	1888	2022	kWh/m2/yr
Daily DNI	4.7	5.17	5.5	kWh/m2/day
Project size	2.5	2.5	2.5	MW
Base Case	14.76	16.79	17.76	%
1.2 Multiplier	17.29	19.31	20.79	%
1.5 Multiplier	19.81	21.75	23.82	%

Scenario	CAPEX	Acres (for 2.5 MW)
Base Case	$6.08/watt	18.18
1.2 Multiplier	$6.52/watt	21.82
1.5 Multiplier	$7.12/watt	26.67

The first scenario is calculated based upon Schofield Barracks as the sample location, which has a DNI level at the lowest end of the range of DNIs on the Island of Oahu – i.e. 4.7, or 1718 kWh/m2/day. A facility with a 1.0, 1.2 and 1.5 multiplier located at Schofield Barracks will theoretically have a capacity factor of 14.76%, 17.29% or 19.31%, respectively. The second scenario is calculated based upon Kahuku as the sample location, which has a DNI level of just above the average DNI level for the entire Island of Oahu. The average DNI level for the Island of Oahu, according to NREL, is 5.16 (*see* the NREL "Average Daily Solar Radiation Per Month" map, attached hereto as **Attachment 4**. A facility with a 1.0, 1.2 and 1.5 multiplier located in Kahuku will theoretically have a capacity factor of 16.79%, 19.31% and 21.75%, respectively. Finally, the third scenario is based upon Kalaeloa as the sample location, which has a DNI level highest end of the range of DNIs for the Island of Oahu. A facility with a 1.0, 1.2 and 1.5 multiplier located in Kalaeloa will theoretically have a capacity factor of 17.76%, 20.79% and 23.82%, respectively. The CAPEX and land requirements are held constant across all three scenarios.

The Company noted that the information provided above was based upon theoretical facilities utilizing the Company's unique trough technology. Facilities utilizing other technologies may not demonstrate an identical capacity factor if placed in the same location. For example, the analysis regarding the Saguaro facility and the Nevada Solar One facility set forth above was based upon the 5.5 DNI level at the Honolulu Airport, which DNI level is at the highest end of the DNI range for the Island of Oahu (identical to Kaleloa). Notwithstanding this most favorable location, the theoretical capacity factors for the Suguaro and Nevada Solar One facilities, if located at the Honolulu International Airport, were 16.9% and 16.49%, respectively.

Given the high capacity factors reflected in the trough scenarios utilized by the HECO Companies in their rate development, it appears that the HECO Companies relied upon theoretical facilities with oversized fields with a 1:1.2 ratio. Specifically, the "Trough-Low" scenario sets forth a 19% capacity factor at a capital cost of $5,535/kW. The "Trough-High" scenario sets forth a 21% capacity factor at a capital cost of $7,777/kW. While the Company is accepting of this approach if deemed appropriate by the Commission, it notes that if such approach is adopted, other facility related costs must be adjusted accordingly. For example, the land cost for the "Trough-Low" scenario in the Tier 3 LCOE Model is $300,000/year. Assuming

for purposes of this argument that the HECO Companies' proposed land cost of $10,000/year/acre and proposed land requirement of 3 acres/500 kW are correct (both to be discussed below), the $300,000/year cost does not reflect any increase in the land requirement for the over-sized field. As such, should the Commission decide that modeling for facilities with a 1.2 (or alternative multiplier) sized field is appropriate, the CAPEX, land requirement, and O&M costs etc. associated with said larger field size must also be adjusted to reflect the larger solar facility.

e) Land Requirements

The HECO Companies propose that the land requirements for a CSP trough project is 3 acres per 500 kW, *see* the HECO Cover Letter, pp. 14. The Company believes the actual land requirement for a CSP trough facility is closer to 3.5-4 acres per 500 kW, assuming a facility with a 1:1 sized solar field.

Two of the largest parabolic trough providers are Alibasa Group and Acciona Power. Alibasa is currently developing 200 MWs in Arizona. In a presentation to Mojave County, Arizona, Alibasa stated the land requirement for their technology was equivalent to 7 acres per 1 MW (Alibasa presentation to Mojave County, Arizona, http://resource.co.mohave.az.us/File/BoardOfSupervisors/RenewableEnergy/4&5%20-%20Ppt0000007.pdf, at 6), or 3.5 acres per 500 kW.

Similarly, Acciona Solar Power provided concentrating parabolic troughs for the Nevada Solar One facility in Boulder City, Colorado. According to Acciona, the Nevada Solar One 64 MW project required 400 acres, or 3.125 acres per 500 kW (Nevada Solar One Project Overview, http://www.acciona-na.com/About-Us/Our-Projects/U-S-/Nevada-Solar-One.aspx). Acciona Solar Power (when it was formerly Solargenix Energy), also provided the parabolic troughs for the Saguaro 1 MW CSP power plant. In a presentation in July 2004, Solargenix stated the APS Saguaro plant would require 7.66 acres per 1 MW, or 3.83 acres per 500 kW, (Solar Electric Generating System for Nevada, "Eldorado Solar Electric Generating System," ASES Presentation by Gilbert Cohen, VP of Engineering and Operations, Solargenix Energy, Portland, OR, July 2004). Upon completion of the final field in 2007, however, the Saguaro facility occupied 13 acres. This equals 6.5 acres per 500 kW.

Accordingly, the average number of acres per 500 kW for all three of the foregoing projects (Albiasa – 3.5 acres, Nevada Solar One – 3.125, and Saguaro – 6.5 acres) is 4.375 acres per 500 kW. The average from these third-party projects corresponds to range specified in TroughNet's frequently asked questions, which states the average "parabolic trough power plant uses about 5 to 10 acres land per megawatt of electric capacity," (Trough Net CSP FAQ, http://www.nrel.gov/csp/troughnet/faqs.html), and is also consistent with the Company's estimate of 3.5-4 acres per 500 kW (which includes acreage required for control facilities and perimeter clearances).

f) Land Cost

The HECO Companies estimate the land cost for solar energy facilities to be between $500 and $15,000 per acre/year, and have input $10,000 per acre/year in the Tier 3 LCOE Model. The data points cited by the HECO Companies in support of this figure are two proposed leases by the State of Hawaii Department of Hawaiian Homeland ("**DHHL**"), one with the Company and the other with Recurrent Energy. To the Company's knowledge, both of these parcels remain in preliminary negotiations, and none of the terms (including the lease amounts) have been finalized. It is also unknown whether the projects contemplated for both parcels are intended to fall within the FiT program or under separate PPAs.

Per the Company's experience and independent research, a low market rate for agricultural land in Hawaii for Tier 3 projects will be approximately $.0245/sq ft/month, or $12,807 per acre/year (which comfortably falls within HECO's $5,000-15,000 range), with periodic escalators (*see, e.g.*, **Attachment 5**, advertising pricing for agricultural land at slightly higher rates ranging from $14,531 - $21,627 per acre/year). The Company proposes this rate as more realistic than that proposed by the HECO Companies. It remains at the low end or, or even below, the range of market rates, however, because the D&O instructs that costs should "support a typical or average project that is reasonably cost-effective," *D&O*, at 62.

As raised above, the Tier 3 LCOE Model currently estimates 3 acres per 500 MW (or 30 acres per 5 MW) and does not account for the increased land requirements of a higher capacity factor. (resulting from an oversized field). As the capacity factor range used for CSP trough technology in the Tier 3 LCOE Model is 19% - 21%, which requires a 1.2-1.5 sized solar field, the Company estimates the land required to accommodate the 1.2-1.5 multiplier scenario to be between 4.363 and 5.33 acres per 500 kW or approximately 43 to 53 acres for a 5 MW facility. As such, a more accurate land cost for a 5 MW system would be between $550,701 and $678,771 per year, with market escalation. If the 1.2 multiplier solar field is preserved in the Tier 3 LCOE Model, then the Tier 3 LCOE Model's land cost of $300,000 (based upon 30 acres per 5 MW) is significantly understated and must be adjusted. The Company has attached hereto, as **Attachment 6**, the Tier 3 LCOE Model with the land cost adjusted as discussed above, and the corrections discussed above with respect to correct application of the HI REITC, Federal ITC and MACRS benefits, for the Commission's consideration of the resulting LCOE.

If land costs are held at the $10,000 per acre/year level, FiT projects would be limited parcels which developers could secure for this sub-market rate. The HECO Companies have submitted no further indication that DHHL or any other land-owner would be willing to offer additional land at the $10,000 per acre/year and the Company has been unable to identify or secure comparables. An inadequate accounting of land cost will fail to "dramatically accelerate the addition of renewable energy from new sources" or "encourage increased development of alternative energy projects," *D&O*, at 13, because the locations at which these facilities can be installed will be severely limited. Therefore, the Company emphasizes the need for the Tier 3

LCOE Model to accurately capture Hawaii premium land costs, as such will drastically affect the ability of developers to locate projects.

In addition to land lease costs, a developer is proposed to be responsible for all permitting and other government required measures in connection with the land (collectively, "**Permitting Costs**"). The HECO Companies estimate the costs for permitting and to be between $35,000 and $150,000. If land rates are set in the Tier 3 LCOE Model such that the land reasonably available for projects will be largely limited to state land (such as the two DHHL parcels cited above by the HECO Companies), the Permitting Costs must reflect the fact that an Environmental Assessment (EA), and possibly, an Environmental Impact Statement (EIS) will be required in all cases. Estimates received by the Company for just an EA fall within the $100,000-$150,000 range. The rough costs of an EIS (if required) are unknown to the Company at this time, but as it is a more involved process and thorough report, the costs are in excess of the EA costs. In addition to these costs, developers of projects proposed for certain state lands will also be obligated to participate in a public hearing process, which requires further expenditure on the developer's part. Accordingly, in the event the land costs continue to reflect state owned sub-market land rates, these additional costs must be included in every scenario as they will be required in nearly every case.

Lastly, due to Hawaii's premium land costs, renewable energy developments will likely be most feasible on agricultural land. There still is, however, the possibility of FiT projects on industrial land. If the Commission wishes to encourage wider distribution of FiT projects, it will need to diversify the type of land available for these projects since agricultural parcels tend to be clustered in specific locations. The Commission could do this by accounting for the use of industrial parcels in the Tier 3 LCOE Model. Publicly available industrial lease quotes range from $14,810 per acre/year to $552,341 per acre/year, *see* **Attachment 7**. If the Commission decides it is in the best interests of the FiT program to encourage broader distribution of FiT projects, it should consider making projects feasible on a wider spectrum of parcels, including industrial zoned land. On the other hand, this would require an upward adjustment to the assumed land cost reflected in the Tier 3 LCOE Model.

g) Cost of Equity

The HECO Companies propose 11% as an appropriate cost of equity in the Tier 3 LCOE Model. The Company believes that equity financing will not be available for Hawaii projects at an 11% rate of return. As discussed by the Company in Sopogy's Tier 1 & 2 Comments and numerous other intervening parties, a cost of equity figure falling between 15% - 20% is more reasonable to attract private capital, especially given the perceived higher risk of investing in Hawaii projects (given our unique land and permitting challenges, and constantly changing and unpredictable legislation and administration of incentives (such as the recent DOTAX TIRE regarding application of the HI REITC)), which requires a premium as compared to expected equity returns for projects in other states. In fact, in the Company's own experiences, 15% has

been offered as an absolute floor rate of return by certain renewable institutional investors. Numerous other developers and project finance parties have had experiences similar to the Company's, and there is a general consensus that investors looking at Hawaii projects will expect the return on equity to fall somewhere between 15% - 20%, if not higher, *see* **Attachment 8**, *see, e.g.*, http://www.floridaenergy.ufl.edu/?page_id=4 (estimating the cost of equity to be approximately 14%), http://sfwater.org/Files/Reports/GES_Draft_Report_Task_3_RPT_9.2.09.pdf ("Typical equity rates for use in financing renewable resources are 12 to 18% after-tax without situations which lower the risk of the project. An after-tax rate of 12% was selected as representing a reasonable project rate of return for equity invested in this type of project."), http://portal.unesco.org/geography/en/files/10612/12278648855Kuljit_Singh.pdf/Kuljit%2BSingh.pdf ("Some states have set tariff subsidy with an return on equity assumption in the range of 14 to 16% for solar energy projects."), http://sefi.unep.org/fileadmin/media/sefi/docs/publications/Finance_guide_FINAL-.pdf (discussing venture capital fund expectations of 50-500% IRR, Private Equity Fund expectations of 25% IRR over a 3-5 year period, Infrastructure Fund expectations of 15% IRR over a 7-10 year period, and Private Equity expectations of 15% for very low risk investments). The D&O requires that "the commission will look most favorably on those based on Hawaii-specific cost . . . data, followed by mainland cost . . . data," *D&O*, at 84. Therefore, the Company believes that the Tier 3 LCOE Model must utilize a cost of equity falling between 15-20% range.

h) Debt Percentage

The HECO Companies assumed a project finance permanent debt percentage of thirty-five percent (35%) at a rate of 9% for 15-20 years. In reality, it is doubtful that debt at this level and on these terms is currently available to Hawaii CSP developers. In fact, in the Company's own experiences, numerous Hawaii lending sources are not willing to lend on these terms in connection with an actual CSP based solar facility.

According to the HECO Cover Letter, it appeared that the HECO Companies relied upon mainland (primarily California) data and lenders in arriving upon their debt assumption, *see HECO Cover Letter*, at 17-18. Again, the Company emphasizes that the D&O states "[i]n evaluating the justness and reasonableness of proposed FIT rates, the commission will look most favorably on those based on Hawaii-specific cost . . . data, followed by mainland cost . . . data," *D&O*, at 84. While the Company is open to supporting evidence from the HECO Companies or other parties that debt on the assumed terms is available for Hawaii parties, the Company is not aware of any sources that would lend on said terms for a Hawaii installation.

In general, developers will only qualify for debt in connection with larger projects when they are able to substantiate output, reliability and longevity of former developments. There may not be many Hawaii CSP developers, if any, meeting these criteria with respect to Tier 3 sized

projects due to the fact that there are no Tier 3 sized projects installed in Hawaii of which the Company is aware. Assuming a CSP developer is able to substantiate these qualities, however, lenders will generally only extend as much as a project can cover. This determination is often made via a Debt-Service Coverage Ratio (DSCR), which is a ratio equal to the operating income divided by the total debt service. By way of reference, large (>50 MW) mainland solar thermal projects can generally expect DSCRs of 1.2 to 1.6. Given the uniqueness of projects located in Hawaii, perceived risks of installing in Hawaii, unpredictability of operating revenues given the Utility's unlimited ability to curtail, and the size of projects as limited by FiT, it would be more realistic to assume a higher required DSCR of approximately 2.0, which results in a 20% permanent debt percentage. As such, without evidence from other parties to the contrary, the Company proposes that a permanent debt percentage of 20% is more realistic than 35%.

The parties have also discussed the Tier 3 Model generally and debated the appropriateness of the levered approach versus the alternative unlevered approach. As none of the parties have been able to substantiate and agree upon the actual applicability (or non-applicability) of the debt and equity assumptions to actual Hawaii developers, an unlevered approach might be more appropriate at this time to recognize the varying financing structures that will be employed by different project developers.

i) Additional Costs and Expenses Not Included in the Tier 3 LCOE Model

HECO includes numerous additional costs throughout HECO's Proposed Schedule FiT and HECO's Proposed PPA that do not appear to be accounted for in the Tier 3 LCOE Model, and thus the Tier 3 FiT Rates. If the Commission approves any of these costs or expenses, then they must be included in the Tier 3 LCOE Model such that the resulting FiT rates are accurate. Examples of these additional costs include, without limitation:

Interconnection. HECO's Proposed PPA requires a Seller to pay for the following Interconnection related costs:

- Operation and Maintenance of Interconnection Equipment up to transfer of the Interconnection Facilities
- Operation and Maintenance of interconnection equipment after transfer of the Interconnection Facilities (Section 3(C) of Attachment G of HECO's Proposed PPA provides that Seller will be billed monthly for "any costs incurred [by the Utility] in operating, maintaining and replacing" the Interconnection Facilities, *HECO's Proposed PPA*, at G-7)
- Costs of any Re-Locating any Interconnection Facilities
- Removal of Interconnection Facilities after termination of the PPA
- Restoration of Land upon which Interconnection Facilities were installed

- Stand-by Letter of Credit and any other security required for Interconnection Cost, *see HECO Proposed PPA*, at G-7 & G-8

(collectively, "**Interconnection Facilities Cost**"). While the Tier 3 Model does include certain interconnection related costs, it does not include the foregoing costs. As such, the Company submits that if the costs above are to be a Seller's responsibility, said costs should be included in the Tier 3 LCOE Model and reflected in the Tier 3 Schedule FiT Rates.

Fees and Deposits. HECO's Proposed Schedule FiT and HECO's Proposed PPA set forth a number of fees and deposits, and additional costs, to be paid by a Seller, including:

- Application Fee : $2,500
- Reservation Fee: $15 per kW, or $75,000 for 5MW
- Operating Period Security: $40 per kW, or $200,000 for 5MW, plus cost of maintaining cash reserve or irrevocable letter of credit, estimated to be approximately $62,000 to keep the facility open for the 20 year PPA term ($3,100 per year x 20 years, as quoted by local banks)
- Service Charge: $25 per month per, or $6,000 over the life of the project (not adjusted for inflation)

Additional Equipment. HECO's Proposed PPA, Section 6.4, requires Seller to "install and maintain appropriate equipment for the purpose of forecasting," *HECO's Proposed PPA*, at 20. The forecasting requirements set forth in HECO's Proposed PPA will also likely require specialized software and other computer capabilities, thus imposing further additional expense upon a Seller.

Insurance Increases Directed by the HECO Companies. HECO's Proposed PPA, Section 18.3 provides that "if, in [HECO's] discretion, [HECO] determines that the coverage limits should be increased, [HECO] shall so notify Seller. . . . Seller shall within thirty (30) days of notice from [HECO] increase the coverage as directed in such notice and the costs of such increased coverage limits shall be borne by Seller," *Id.* at 39. While the Company does not agree with HECO's unilateral ability to require increased insurance limits over and above that already required in the PPA and urges the Commission to strike this section, if such is included in the final PPA, the additional cost of any insurance increase must be accounted for in the FiT rates. As the amount of any increase is currently unknown and there are no limits proposed, the Company is unable to provide estimated cost data for the Commission's consideration.

While the Company does not necessarily agree that every item aforementioned should be passed through to Sellers (e.g. especially since a Seller will not own any of the Interconnection Facilities), if the HECO Companies wish to impose these requirements, the FULL cost of these items must be included in the Tier 3 LCOE Model such that they are incorporated into the final Tier 3 FiT Rates. The HECO Companies may argue that certain of these fees are refundable, and

thus, should not be included in the rates. The Company believes this to be unreasonable, as payment of all of these items require capital upfront. For example, the operating period security not only has a recurring annual fee in the event a letter of credit is established, but it also requires a significant amount of capital (and in some cases, the entire security amount) to be "tied-up" for the full life of the facility – i.e. 20 years - to "back" the letter.

j) Proposed Limits to CSP Technology

The HECO Companies raise DOTAX's disparate treatment of trough solar technologies versus dish, PV and CPV technologies, and argues that such could result in significant premiums to dish and CPV technologies, *HECO Cover Letter*, at 35. The HECO Companies further suggest that there be an "explicit limit to the number of megawatts of CSP allowed in the FIT program," *Id.*, due to the higher cost CSP technologies.

The Company notes that it has not discussed treatment of the HI REITC with DOTAX with respect to its applicability to dish or CPV technologies, so does not have first-hand knowledge as to the DOTAX's position in these regards.[5] Assuming the accuracy of the HECO Companies' analysis, however, such is an argument for inclusion of CPV in the PV technology category instead of CSP as treatment of CPV technology for tax purposes is consistent with treatment of PV due to the fact that both are PV-based technologies (with very similar defining attributes, that are key in DOTAX's analysis). Notwithstanding, with respect to both dish and CPV technologies, while the Company is not in a position to comment specifically, it notes there are no parties in this docket representing either technology and that there are no dish or CPV technology providers (or projects) in the State of Hawaii of which the Company is aware. As such, given the long development cycles for Tier 3 sized projects, the fact that trough technology appears, at the moment, to be the only represented technology in the State of Hawaii (with a 4 acre installation completed and owned by Keahole Solar Power LLC in Kona, Hawaii), and the main objective of the FiT program is to "accelerate the acquisition of renewable energy," *D&O*, at 1, the Company respectfully urges the Commission to ensure CSP trough projects remain incentivized by the final FiT program to support deployment of CSP projects in the state.

With respect to the issue of limits on the number of megawatts of CSP that should be allowed in the FiT program, the D&O engaged in a full discussion of project caps and did not contemplate this type of technology specific cap. It is difficult for the Company to comment further because there are no details of the proposed limits. The Company does wish to emphasize, however, that the largest factor in the disparate rates appears to be the varying benefit of the HI REITC with respect to different technologies based upon guidance issued (and not issued) to different renewable energy technology industries by DOTAX. The Company is not in

[5] On May 2, 2010, DOTAX released Tax Information Release No. 2010-02 to provide further guidance with respect to defining a system for purposes of the HI REITC. While the Company is not expertise with respect to the HI REITC , as applied to PV systems utilizing inverters, this TIR No. 2010-02 might affect the HI REITC benefit significantly for certain CPV technologies, depending upon the installation.

support of affecting the FiT Program due to disparate tax treatment of varying renewable energy technologies and highlights that tax laws and policies are all subject to change legislatively and in their administration. Given the importance of a diverse FiT program and resulting technology portfolio, and that there are already FiT program limits with respect to both overall program size and time (2-year program review), the Company does not believe further limits for any specific technology type are appropriate, especially if such limits are not based on technology or reliability concerns, but are rather driven by tax regulation.

On the other hand, the Company does wish to disclose that it has been working together with partner companies since December of 2009 to obtain clarity and guidance from DOTAX in the form of a private letter (which, if ever issued, would only be applicable to specific circumstances described and upon which only the requesting parties can rely) with respect to how DOTAX views the HI REITC as applied to CSP trough systems. To date, none of the parties involved have been able to obtain any guidance or comfort from DOTAX, and DOTAX has not issued any formal guidance on the HI REITC and solar thermal trough systems. If, however, DOTAX does issue formal guidance which can be relied upon all solar thermal trough providers for all projects, the Company would support re-examining the applicable CSP rates to reflect any additional HI REITC benefit that can be recognized due to such guidance.

2) <u>Comments on Proposed Schedule FiT</u>

a) <u>Eligibility</u>

Section B(5) of HECO's Proposed Schedule FiT Tier 3 provides that a "Seller may not sell electric energy to third parties . . ," and Article 20 of HECO's Proposed PPA prohibits Seller from "sell[ing] energy from Facility to any Third Party," *HECO's Proposed PPA*, at 40.

While this language is compliant with the D&O's directive that Sellers "cannot sell electricity to third parties," *D&O*, at 85-86, the Company notes that it is very likely that a Seller will not be the title landowner of property upon which a Facility is located. In fact, such is recognized by the parties' in-depth discussions of land costs, which focus on market lease rents (as opposed to land acquisition and ownership). As a result, it is possible (and likely) that the landowner will have operations located upon said parcel and wish to power those operations from the Facility. Such arrangement may not meet the requirements of HECO's Net Metering Program, or the parties may not wish to avail themselves of that program for business reasons. Therefore, while inconsistent with the express language of the D&O, it may be consistent with the spirit of the D&O that Seller be allowed to power the landowner's on-parcel operations as this arrangement looks much like a self-generation arrangement in application, but for a slightly different ownership structure – i.e. a Seller leases or licenses instead of purchases land. The Company, thus, suggests that the sections set forth above be revised to allow sales of energy from FiT Facilities to operations located upon the same parcel as the Facility (with no further broadening) – with such restrictions as HECO would otherwise impose upon self-generation.

b) Alternative Rates Based Upon HI REITC

HECO's Proposed Schedule FiT sets forth alternative rates for CSP in recognition that an investor in solar energy projects may take the HI REITC in tax credit form or as a lesser refund, in the event such investor has insufficient Hawaii State income tax liability, HRS § 235-12.5. The tax credit is equal to 35% of the cost of the solar system, capped at $500,000. In order to take the HI REITC as a refund, the amount of the HI RETIC must first be reduced by 30%, resulting in a net benefit of 24.5%. Since a large percentage of solar energy project investors have been taking the HI REITC as a refund instead of a tax credit, *see* **Attachment 8**, the alternative rate approach contained in HECO's Proposed Schedule FiT is appropriate and the Company supports its continued inclusion. Otherwise, if the lesser refund amount is not accounted for in the final FiT rates, the pool of potential equity investors will shrink to include only those investors with sufficient state income tax liability to use the full credit amount.

Section G(2) of HECO's Proposed Schedule FiT states that "[i]f the Seller provides written documentation by the In-Service Date that the Seller will elect the tax credit refund provision for solar energy technologies as provided in HRS Section 235-12.5(g), the Company shall pay for each kilowatt-hour ("kWh") of electric energy delivered to the Company by Seller as follows . . ." The Company notes that it is typical for larger projects to be owned by a project entity that is the "Seller" for purposes of the FiT program. This project entity, however, would be owned by one or more investors who would ultimately make their own determination as to whether they will take the HI REITC as a credit or a refund. In light of this common structure, this section should be re-worded to read "[i]f the Seller provides written documentation by the In-Service Date that the Seller, or its owners, will elect the tax credit refund provision. . . ." Moreover, while the HI REITC benefit is triggered when the corresponding facility has been placed "in service" (which, for purposes of the FiT, is the "Commercial Operation Date"), taxpayers claiming the HI REITC in connection with such facility will not do so until much later when they file tax returns for the year in which the facility as placed "in service." These tax returns would not be due, for example, until the following April or October. It follows that these taxpayers may not be certain of their exact tax liability on the In-Service Date, and thus whether they will tax the HI REITC as a credit or a refund on said date. Therefore, the Company also recommends a reconciliation or amendment opportunity once the taxpayers claiming the HI REITC have made their final determinations as to whether the benefit will be claimed as a credit or refund. This could coincide with the subsequent tax filing submittal proposed by the HECO Companies.

In Section G(2) of HECO's Proposed Schedule FiT, the HECO Companies require the Seller to "provide a copy of the actual tax filing to the State Department of Taxation documenting [the HI REITC] refund election within 30 days of the filing." While the Company does not disagree with the intent of this section, it proposes that the requirement be limited to submission of a copy of the taxpayer's DOTAX Form N-342, Renewable Energy Technologies Income Tax Credit, or successor form if amended, with the investment amount and subsequent

credit or refund amount redacted (at each taxpayer's election). Form N-342 shows the taxpayer's election to take the HI REITC as a credit or refund, so should be sufficient for purposes of evidencing such. The Utility does not necessarily need to know the exact investment amount of each individual investor, as the Seller or developer can compile the cumulative investment amounts and percentages in a separate report. Otherwise, there will almost certainly be strong resistance from investors if asked to submit copies of their entire tax filings by the Seller or developer for subsequent submission to the Utility, or if asked to submit Form N-342 showing the exact amount invested (or credit or refund, from which the investment amount can be calculated). Institutional investors likely consider their tax returns proprietary, to an extent, and thus would almost certainly not be willing to disclose their entire returns or investment amounts with a publicly-traded entity (or any third-party, for that matter). From the Company's experience, certain high-net-worth and institutional investors are careful to not even disclose the fact that they have made investments in any projects for certain business reasons. Therefore, the Company submits that a redacted Form N-342 and an accompanying certified report (certified by an officer, director or manager of the Seller or developer, as the case may be) setting forth the overall credit versus refund percentages would suffice for purposes of substantiating the applicable HI REITC tax benefit.

Finally, the Commission should note that equity financing for larger projects may not come from investors with identical tax liabilities. In reality, there will likely be a mix of investors. Some will take the 35% credit and others will take the lesser refund. Accordingly, the Company suggests that in these cases, the final rate be a blend of the credit-based and refund-based rates based upon the percentages of credit and refund takers. It would then be left to the Seller to allocate project revenues appropriately per its own governing documents. The result would be to accomplish the FiT objectives of a "reasonable return" – i.e. there is no short-changing or premium – with the respective Seller or developers carrying the burden and complexity of properly allocating profits and losses.

c) Procedure for Modifications to Energy Rates

HECO's Proposed PPA, Section C(3) provides that "the FIT energy payment rate may be modified by the Commission during the term of the Agreement if it is determined by the Commission to be necessary to maintain the viability of Seller's development and operation of [the/a] Facility due to changes in federal or state tax laws." The procedure for modifying a rate change remains unclear. As such, the Company urges inclusion of a clear procedure set forth in the final schedule FiT, pursuant to which parties may require a modification or the Commission may proposed a modification, *sua sponte*, with opportunity for parties to comment before said modification is finalized.

d) Additional Fees

Section L of HECO's Proposed Schedule FiT delineates the following three fees (in addition to an application fee) the HECO Companies proposed to charge Sellers: Reservation Fee, Operating Period Security and Service Charge. The Company is not in agreement with the charging of all the proposed fees and notes that these fees are not identified or mandated in the D&O.

The most objectionable fee, however, is the operating period security proposed by the HECO Companies as it is capital intensive, burdensome and unreasonable in light of the FiT program. Section L(4) of HECO's Proposed Schedule FiT and Article 14 of HECO's Proposed PPA proposes to require an Operating Period Security of $40/kW, which must be available in cash or by irrevocable letter of credit, and from or against which HECO may draw, in its "sole discretion" to recover amounts it believes it is owed in connection with the PPA, *HECO's Proposed PPA*, at 29-30. Such is reiterated in section 14.9, which provides that "[t]he form of such security shall meet [the Utility's] requirements to ensure that claims or draw-downs can be made unilaterally by [the Utility]," *Id*, at 29. HECO's Proposed PPA, section 14.6 and 14.7, also allow the Utility to "draw all or any part of such amounts" in its "sole discretion" and requires Seller to replenish any amount drawn from the Operating Period Security with any drawn amounts, *Id*. 28.

The requirement of an operating period security increases the cost of FiT facilities due to the extra upfront capital requirement. It is also overly punitive as it does not offset any damages amount nor does it act as a liquidated damages mechanism, and is not characteristic of a balanced business deal. The structure of the FiT Program is for Sellers to independently generate electricity and for HECO to purchase said electricity "as provided" at arm's-length. HECO has no ownership type rights in or to the facility. This operating period security is not characteristic of such an arm's-length "as provided" supply relationship. If a Seller is not producing electricity, the Utility is not required to purchase and Seller receives no revenue. If such causes damage or loss to the Utility in violation of the PPA, then the Utility would have a claim for breach of contract against Seller. To impose the operating period security requirement and to give the HECO Companies the ability to draw-down on such amounts in their "sole discretion" and "unilaterally," in addition to remedies already available with no offset or liquidated damages type of trade-off results in a highly imbalanced agreement between the Utility and Seller. Moreover, developers and Sellers already have sufficient business incentive to complete their Facilities on time and in accordance with the final PPA. In addition to other significant consequences already proposed in HECO's Proposed PPA, such as forfeiture of deposits and termination, there are also large amounts of capital at stake, investor expectations and reputational pressures.

In addition to the inequity of this proposed requirement, the cost should also be considered. For a 5MW facility, the security amount required would equal $200,000 ($40/kW x

5,000 kW). Further, as discussed above, the amount of the security required for a 5MW facility would be $200,000. To make this operating period security available, the Seller or developer would either need to put a full $200,000 in a cash reserve, set for the entire 20 years (and replenish in the event the Utility draws on the amount), or incur the cost of keeping a letter of credit in place for the entire 20 years, which cost is estimated to be approximately $62,000 for the 20 year PPA term ($3,100 per year x 20 years), *see* **Attachment 9**, plus cash collateral in the amount required by the respective lending institution might require, which, in many cases, will be as high as 95-100% of the letter of credit amount, *see* **Attachment 10**. In total, the cost of a letter of credit at $40/kW over a 20 year period is estimated to be as high as $262,000. The added cost of the operating period security is significant and serves to increase the cost of each project. The Company is strongly opposed to the Operating Period Security provisions, and urges deletion of the requirement altogether. If this, or any of the other fees are preserved in the final Schedule FiT, however, these costs must be built into the Tier 3 Model and appropriately reflected in the rates. While some might argue that certain of these fees are refundable, a developer or Seller must still raise or borrow these significant capital amounts to meet their obligations. Further, the "refundable" portion of these obligations will be tied-up for as long as 20 years.

3) Comments on HECO's Proposed PPA

a) Parallel Operation, Article 1

HECO's Proposed PPA, Article 1, requires as a contingency to Seller's interconnection and operation, that a facility must not "(i) adversely affect [the Utility's] property or the operations of its customers and customers' property; [or] (ii) present safety hazards to [the Utility's] System, property or employees or [the Utility's] customers or the customers' property or employees," *HECO's Proposed PPA*, at 14. The foregoing standards are too vague and left to the Utility's full discretion, as "parallel operation shall be contingent upon the satisfactory completion, as determined solely by Company, of the Acceptance Test," *Id.* (emphasis added). This makes it impossible for a developer or Seller to address the concerns underlying this section as there are no specific and concrete requirements to determine adverse effects and safety of a facility. Therefore, the Company proposes deletion of the above quoted language and instead require compliance with Rule 14(h) regarding interconnection, and such other clear and concrete interconnection and safety requirements as the Commission deems fit. Moreover, there should be a "reasonableness" limitation to the Utility's discretion, and a review procedure in the event a facility is not allowed to interconnect and operate. Additionally, the Company proposes that this Article 1 also contain an obligation for the Utility to timely interconnect completed FiT facilities and receive electric energy provided, as every delay causes developers and Sellers to incur additional cost and expense.

b) Forecasting, Article 6

HECO's Proposed PPA, Section 6.2, requires Sellers to update their forecast of electric energy to be delivered periodically, provided that "Seller shall not be required to update such forecasts more frequently than once per hour," *HECO's Proposed PPA*, at 19. The Company submits that this requirement is overly burdensome, given that the updates will likely be done by a facility's sole (possibly part-time, given the allotted cost for O&M in the Tier 3 LCOE Model) operator. There will certainly be periods of time during which a facility's operator will not be able to submit updates hourly, or even every few hours, due to required work and maintenance on the actual facility and non-working hours. As such, the Company proposes any of the following: (i) that the updates be required not more than during a period or somewhere between two (2) days and week, or (ii) that updates be required only when changes are anticipated to change in excess of a defined material threshold, such as ten or fifteen percent.

c) Curtailment, Article 8

Article 8 of HECO's Proposed PPA discusses curtailment, and provides that HECO "may require Seller to temporarily curtail, interrupt or reduce deliveries of electric energy" in a number of circumstances, including without limitation, "light loading conditions" or when HECO system operator determines in his or her sole discretion that the reliability of HECO's system is jeopardized, *Id.* at 21.

HECO's Proposed PPA, on the one hand, gives broad discretion to the Utility in determining when and how much to curtail, but the Tier 3 LCOE Model (and thus HECO's Proposed Tier 3 Rates and HECO's Proposed Schedule FiT) on the other hand, reflects no curtailment in operating revenues from electricity sales. The reality and potential economic impact of curtailment must be addressed. If projects are curtailed and such results in materially adverse economic impacts upon any FiT project because these impacts were not accounted for at the outset, developers and investors will be injured, and continued or future participation in any FiT program will be deterred, thus defeating the very objectives of the FiT program. In fact, given the financial and other risks, developers may be unwilling to move forward with projects at all in light of this significant uncertainty.

In the Tier 3 LCOE Model, the assumed Operating Revenues have not been reduced for possible curtailment as the capacity factor proposed has not been reduced and the Annual Generation number is 10,512 MWh in year 1 (365 days x 24 hours x 5 MW), with degradation over time. Despite these estimated numbers, HECO's Proposed PPA gives HECO the right to curtail a facility for an undetermined length of time, with unspecified frequency and for a host of non-objective reasons. This gives rise to a fatal flaw in the Tier 3 LCOE Model and HECO's Proposed Tier 3 Rates – i.e. the primary element of a FiT facility's revenues remain undeterminable (a range cannot even be identified), and left largely to the energy purchaser's discretion.

Given that HECO has not moved from its proposed 11% Cost of Equity, despite consistent informal and filed comments from other docket parties that 11% is too low to attract sufficient levels of capital, this type of variability in, unilateral discretion over and definite overstatement of a facility's main revenue line in HECO's underlying financial model is not reflective of the reality of the FiT Program.

The PUC Decision and Order governing this Docket No. 2008-0273 (the "**D&O**") did not set forth a framework to govern curtailment, stating that "[i]n light of the uncertainties involved in estimating the level and effect of curtailment, without prior experience with the FIT process, the commission will not establish a compensation mechanism for curtailment of FIT projects at this point in time," *D&O*, at *71*.

The only way in which projected Operating Revenues included in the Tier 3 LCOE Model would be appropriate is if curtailment were absolutely prohibited. This does not appear feasible, however, given that "the HECO Companies' systems have no export outlet for excess energy, and, as such, where conditions with excess energy begin to develop, curtailment is required," *D&O*, at 70. In the alternative, the Schedule FiT and Final PPA could set forth an annual curtailment cap, which would be based upon the parties' best estimate of the number of curtailment hours reasonably necessary in each year. HECO would then be permitted to curtail facilities for a number of hours up to the curtailment cap. Should HECO curtail any facility in excess of the applicable curtailment cap in any one year, HECO should be required to pay Seller for said excess curtailed hours at the scheduled FiT Rates. Estimated Operating Revenues would be reduced by the curtailment cap hours, thus allowing developers and investors some predictability in their financial models. The curtailment cap should be set at a level that recognizes the practical need for curtailment but also incentives HECO to manage their system's reliability and to minimize curtailment across Sellers. Moreover, the cap should be reduced over time and eventually eliminated to incentive aggressive system upgrades.

Additionally, Section 8.1 allows the Utility to curtail in "any situation that the [Utility] System Operator determines, at his or her sole discretion using Good Engineering and Operating Practices, could place in jeopardy the reliability of the [Utility] System," *HECO's Proposed PPA*, at 21. This allows too much discretion to the Utility and provides no mechanism to check such discretion in the event a Seller deems curtailment unreasonable and inequitably applied. The issue of curtailment is one that will significantly impact all Tier 3 FiT projects, given that it directly affects a project's operating revenues. Therefore, the Company proposes imposition of a "reasonableness" or similar requirement on the Utility's discretion in this case, and a separate, independent and immediate review process of each Utility's curtailment activities to ensure that all curtailment is proper.

Finally, Section 8.2 of HECO's Proposed PPA states that the Utility "shall not be required to purchase electric energy during any period during which, due to operational circumstances, purchases from Seller will result in costs greater than those which [the Utility]

would incur if it did not make those purchases, but instead generated an equivalent amount of electric energy itself," *Id.* at 21. This statement appears to be in direct conflict with the FiT program itself as it is known that, currently, electricity generation from renewable energy generally costs more than generation from traditional utility sources. Unless the Company is misunderstanding this section, the Company proposes deletion in full.

d) Permits and Land Rights, Article 11 and Attachment G

HECO's Proposed PPA, Article 11, requires Seller to obtain all permits, consents and approvals required for construction of the subject facility, and Attachment G, Section 8, requires the same for interconnection facilities. An obligation of the Utility to cooperate with Seller in applying for and obtaining permits should be included in these sections, as there may be instances where the Utility's collaboration will be required to apply for and obtain certain permits, consents and/or approvals.

e) Extended Term, Article 12

Section 12.2 of HECO's Proposed PPA provides that "[u]pon expiration of the Initial Term, Seller shall offer to sell its electric energy to the Utility during the Extended Term at the modified electric energy payment rate . . ," *HECO's Proposed PPA,* at 25 (emphasis added). Notwithstanding, the Utility "does not have an obligation to purchase electric energy from the Seller after the Initial Term," *Id.*

Sellers, other than those building on their own land, will most likely enter into land right (e.g. lease, license etc.) agreements for the set FiT project term of 20 years. To insist that Sellers negotiate unilateral extension options (which options will be exercised at the sole discretion of the Utility) following a 20 year land right term will certainly hinder Sellers' abilities to secure land or require land premiums. In the case where Sellers own their own land and have the desire to continue selling electricity, they can offer to continue electricity sales and HECO can elect to purchase. On the other hand, those Sellers who no longer have land rights for their facilities cannot be required to continue electricity sales to HECO beyond the set PPA term of 20-years, especially if HECO has a unilateral right to purchase said electricity or not.

Therefore, while the D&O does appear to contemplate this right of the Utility to continue to purchase electricity from Sellers following the PPA term, *D&O*, at 90-91, the Company encourages the Commission to supplement this instruction for the reasons stated above. The Company would be supportive of extension periods, so long as Sellers have the ability to unilaterally opt out should they need to given expiring land rights or similar limitations.

f) Guaranteed In-Service Date, Article 13

Section 13.3 of HECO's Proposed PPA provides that "Seller shall achieve the In-Service Date no later than the Guaranteed In-Service Date," and sets forth grace periods in the event the

Guaranteed In-Service Date is not met, *HECO Proposed PPA*, at 28. A grace period of one-hundred and eighty day (180) days (or shorter duration of the force majeure event) is offered if the Guaranteed In-Service Date is not met due to a "Force Majeure" event. Section 21.1 of HECO's Proposed PPA defines "Force Majeure" for purposes of the PPA and Section 21.2 lists exceptions. Specifically, Subsection 21.2(D) lists "Seller's inability to obtain Permits or approvals of any type for the construction, operation, or maintenance of Facility," *Id.* at 47.

It is general knowledge that permitting delays are a common reason for delay in Hawaii construction projects, and such delay is often not due to any fault of the permit applicant. In the case of renewable energy projects, since these are new and complex types of constructions, even longer delays can be expected (and have been experienced) as a result of the limited resources and number of individuals with renewable expertise in the permitting departments. While there have been many legislative efforts to fast-track renewable energy permitting (some as recent as this most recent 2009 State of Hawaii Legislative Session), none have succeeded in enactment of clear and accelerated permitting timelines. Similarly, it is common for delays in a project development to result from discovery of Native Hawaiian burials. There exist a host of additional circumstances over which a developer may not have control, such as litigation and environmental issues discovered (and possibility requiring subsequent action) in the HRS Chapter 343 environmental assessment (EA) and environmental impact statement (EIS) process, but which may delay a project's progress.

If terminated for a reason like those discussed above, the developer will likely have already expended significant amounts of capital pursuing the project and will have made numerous contractual commitments. Therefore, if these types of set-backs are not accommodated, the risk of PPA termination is overly harsh given the lack of control developers have over the current state of renewable energy project permitting in Hawaii, the presence ofNative Hawaiian burials on undeveloped parcels, environmental issues, unforeseen litigation (which is often brought with the sole motivation to delay a project until it is abandoned), etc. As such, these and other causes of delay that are beyond the reasonable control of Seller should be included as either "Force Majeure" events or alternative circumstances in which the timeline of a project may be extended and for which Seller shall not be faulted. This issue can be revisited at a FiT program periodic review, or sooner, should the state, counties or permitting departments themselves, for example, ever implement clear and reliable permit processing timelines. Finally, as it is foreseeable that certain Force Majeure events could last longer than one-hundred and eighty (180) days, the 180 day time period set forth in section 13.3(B) of *HECO's Proposed PPA* should either be extended or deleted.

g) Events of Default, Article 15

Section 15.1 of HECO's Proposed PPA delineates certain occurrences that constitute an event of default. Certain of these items, such as subsection (B) and (C) concern interruptions in a Seller's delivery of electric energy to the Utility. All occurrences like this should be limited

such that any non-delivery of power caused, directly or indirectly, by the Utility's curtailment of the facility, is not included for purposes of determining default.

h) Damages in the Event of Termination By Company, Article 16

HECO's Proposed PPA, Section 16.2 proposes a termination fee in the event the Utility terminates the PPA due to an event of default "calculated by multiplying the Contract Capacity by $40/kW," *Id.* at 34. It appears that this section is intended to act as a liquidated damages provision, however, section 16.3 states that "[e]ach Party agrees and acknowledges that . . . payment of Termination Damages or the retention of the Reservation Fee does not relieve Seller of liability for costs and balances incurred prior to the effective date of such termination," *Id.* at 34. The Company is not in a position to be able to determine how much damage, if any, would be caused to the Utility in the event of termination of the agreement and thus must leave the determination as to whether the $40/kW amount is appropriate to the Commission. The Company is concerned, however, that this section, as written, is unreasonable in that a floor of $40/kW penalty is imposed on Sellers for early termination (even if the Utility suffers no damage at all) and that such does not effectively constitute a liquidated damages clause because the Utility still has a claim again Seller for "costs and balances incurred prior to the effective date of such termination." This contradicts the spirit of liquidated damages provisions, and imposes an unjustified and unusual (by way of balance agreements) penalty on Sellers. Moreover, assuming this section is intended to act as a true liquidated damages clause, the HECO Companies have not adequately substantiated the relation of the $40/kW amount to actual damages that will be suffered (which is required for said liquidated damages to be enforceable) and it remains unclear as to whether such can be substantiated. Therefore, the Company proposes revision of the section such that it is not punitive and constitutes a true and realistic liquidated damages clause, or in the alternative, deletion the section altogether and leaving remedies to default contract law.

i) Financial Compliance, Article 24

Section 24.1 of HECO's Proposed PPA requires Seller to "provide or cause to be provided" all information "reasonably requested" in connection a number of the Utility's public disclosure and other requirements, such as "identifying variable interest entities and determining primary beneficiaries" and "Section 404 of Sarbanes-Oxley Act of 2002," *HECO's Proposed PPA*, at 50. In addition to the provision of information, Seller is required to allow the Utility or its auditor to "audit . . . Seller's financial records, including its system of internal controls over financial reporting," *HECO's Proposed PPA*, at 49-50. These requirements could drain a Seller's resources, despite the Utility's obligation to cover all associated costs, as many renewable energy companies are under-staffed. Moreover, such disclosure is extremely intrusive. As an alternative, the Company proposes that the standard for imposing the requirement be stricter than as "reasonable requested" by the Utility. Sellers should only be bound to produce what is "legally required" as may be determined by a written opinion of the Utility's legal counsel. Moreover, any information disclosed should be subject to stricter

confidentiality restrictions, such as limiting the Utility's ability to disclose to only those individuals with a "need to know" such information.

j) Good Engineering and Operating Practices, Defined Term

HECO's Proposed PPA references "Good Engineering and Operating Practices" throughout the agreement. For example, Article 1 provides that "parallel operation shall be contingent upon the satisfactory completion, as determined solely by Company, of [the Utility], of the Acceptance Test and, to the extent applicable, the Control System Acceptance Test, in accordance with Good Engineering and Operating Practices," *HECO's Proposed PPA*, at 14 (emphasis added). Section 8.2 allows the Utility to curtail Seller's facility in "any situation that [the Utility's] System Operator determines, at his or her sole discretion using Good Engineering and Operating Practices, could place in jeopardy the reliability of the Utility System, *Id.* at 21. And, Section 15.1(E) utilizes such defined term to determine an event of default by Seller, *Id.* at 31.

HECO's Proposed PPA offers a definition for "Good Engineering and Operating Practices," but the definition as proposed is extremely ambiguous and subject to discretion. As other parties have raised and discussed this issue in depth, the Company defers to those parties' filings. The Company, does however, request that the Commission require alternative, more identifiable, objective and measurable guidelines to allow developers and Sellers predictability and the ability to comply with all applicable standards.

k) Facility Owned by Seller, Attachment B

HECO's Proposed PPA, Attachment B, Section 2(A) provides that the Utility "may require periodic reviews of the Facility, . . . and Seller shall implement changes [the Utility] deems necessary for parallel operation or to protect the [Utility] System from damages resulting from the parallel operation of the Facility with the [Utility] System," *HECO's Proposed PPA, at* B-8. For practical reasons, a notice requirement should imposed prior to each "periodic review" by the Utility of a facility. Further, this section allows the Utility unlimited discretion in requiring "changes" for parallel operation or to protect the Utility's system for damage. There should be a reasonableness requirement to the Utility's discretion and there must also be more concrete and measurable guidelines with respect to any facility changes, especially because facility changes could result in significant cost to a Seller and possible periods of non-production of electricity, thus adversely affect the Seller's revenues.

l) Company-Owned Interconnection Facilities, Attachment G

HECO's Proposed PPA, Attachment G, Section 8, requires the Seller to "obtain all required permits, licenses, approvals, certificates, entitlements and other authorizations issued by Governmental Authorities (the "Government Approvals") required to construct, own, operate

and maintain the [Utility]-owned Interconnection Facilities," *HECO's Proposed PPA*, at G-10. This section places the entire burden of obtaining all Government Approvals in connection with the interconnection facilities, which are eventually to be assigned to the Utility, upon Seller. At the very least, this section should contain a provision requiring the Utility to cooperate with the developer in applying for and obtaining such Government Approvals as Seller shall "reasonably request," as certain applications may require such Utility involvement and the facilities at issue will ultimately by Utility-owned.

Section 9 of the same attachment requires Seller to obtain all land rights required to "construct, maintain and operate the [Utility]-Owned Interconnection Facilities." *Id.* Further, "[s]uch Land Rights shall contain terms and conditions which are acceptable to [the Utility] and shall be provided in advance to [the Utility] for its review," *Id.* Prior review and approval by the Utility are not appropriate not directed by the D&O, and adds to developer's burden and overall delay. Rather, a requirement in the PPA that Seller ensure adequate land rights for the interconnection facilities should suffice.

m) Milestones, Attachment L

Attachment L of HECO's Proposed PPA sets-forth a number of delivery milestones to be achieved by Seller. As the attachment proposes no dates or even a certain order of the milestones, it is difficult to comment whether the milestones are appropriate. Overall, however, the Company is not in agreement with the milestones outlined because much of the information, including the commercial business terms, contained in the agreements proposed to be delivered to the Utility will be sensitive and proprietary to Seller and other parties to the documents, and may in certain cases, be subject to confidentiality obligations. For example, financing documents are always highly private and few investors will be comfortable with a Seller disclosing said agreements. Again, as the relationship between Seller and the Utility is currently proposed to be an arm's-length as-available type of relationship, there is little justifiable need for the Utility to require submission of all of the documents set forth in Attachment L. That being said, if the Commission deems it necessary for there to be deliverables signifying accomplishment of certain milestones in the construction process, a certification by an officer of Seller that the respective milestone has been achieved could be a reasonable alternative.

In conclusion, the Company recognizes and appreciates the collaborative efforts made by all of the parties to this docket. As a result, much progress was made prior to this filing. Notwithstanding, a number of issues remain unresolved at this point in time. As discussed, the Tier 3 LCOE Model and resulting Tier 3 Fit Rates still do not reflect all actual costs of a project and require certain other adjustments for accuracy. Moreover, certain revisions are still needed to HECO's Proposed PPA in order to achieve the FiT Program's objectives of accelerating the development and installation of renewable energy resources in the State of Hawaii. Therefore, the Company respectfully submits the forgoing comments to the Commission for its consideration.

Attachment 1

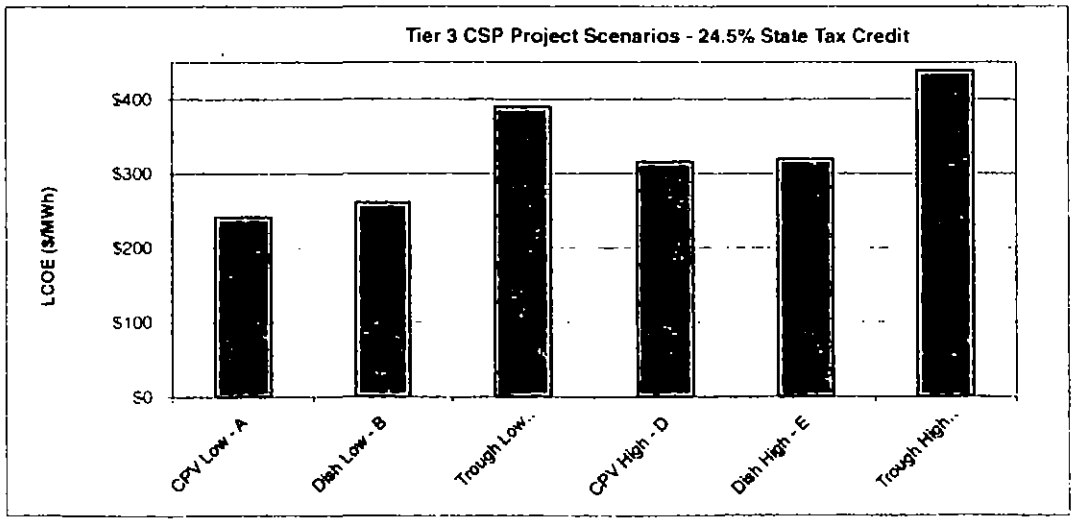
Tier 3 CSP

500kW-5MW

Inputs	CPV Low - A	Dish Low - B	Trough Low - C	CPV High - D	Dish High - E	Trough High - F
Size (kW)	5000	5000	5,000	1,000	1,000	1,000
Production (kWh/kW)	2015	2015	2015	1927	1840	1921
Curtailment (%/year)	0%	0%	0%	0%	0%	0%
Contract life	20	20	20	20	20	20
System life	20	20	20	20	20	20
Annual degradation (%/year)	0.75%	0%	0%	0.75%	0%	0%
Capacity Factor	23%	23%	19%	22%	21%	21%
Capital Costs						
Stirling Dish Capital Costs		$7,067			$7,852	
Solar Trough Capital Costs			$5,535			$7,067
CPV Capital Costs	$5,889			$7,055		
Interconnection	$255	$255	$255	$500	$500	$500
Hawaii Permitting	$30	$30	$30	$150	$150	$150
Total Installed Cost	$6,174	$7,352	$5,820	$8,365	$8,502	$7,777
O&M Costs						
Consolidated O&M ($/MWh)	$0	$0	$75	$50	$30	$75
Other Costs						
Insurance (% Capital/year)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Property Tax ($/year)	$0	$0	$0	$0	$0	$0
Land ($/year)	$250,000	$100,000	$300,000	$40,000	$20,000	$80,000
Financing						
Debt percentage (%)	35%	35%	35%	35%	35%	35%
Debt rate (%)	9%	9%	9%	9%	9%	9%
Debt tenor (years)	20	20	20	20	20	20
Equity rate (%)	11%	11%	11%	11%	11%	11%
Construction Debt Percentage (%)	80%	80%	80%	80%	80%	80%
Construction Debt Rate (%)	11%	11%	11%	11%	11%	11%
Construction Debt Term (months)	12	12	12	4	4	4
Tax Incentives						
Depreciation Years	5	5	5	5	5	5
PTC ($/MWh for 10 years	NA	NA	NA	NA	NA	NA
Federal ITC (%)	30%	30%	30%	30%	30%	30%
State ITC (%)	24.5%	24.5%	24.5%	24.5%	24.5%	24.5%
# of systems	1	1	1	1	1	1
Tax Rate (all in)	40%	40%	40%	40%	40%	40%
LCOE ($/MWh)	$242	$262	$391	$316	$321	$440

Midpoint of range (proposed tariff) $341

Key Inputs	A	B	C	D	E	F
Size (kW)	5,000	5,000	5,000	1,000	1,000	1,000
Capacity Factor (%)	23%	23%	19%	22%	21%	21%
Installed Cost ($/kW)	$6,174	$7,352	$5,820	$8,365	$8,502	$7,777
LCOE	$242	$262	$391	$316	$321	$440



Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	5
Capital Cost before construction financing ($/kW)	$5,820
Capital Cost incl construction financing ($/kW)	$6,086
Fixed O&M ($/kW)	$75
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$300,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	19%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	12
Economic Life (years)	20
% of Plant at 5-yr MACRS	96%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	0%
% of Plant at 20-yr MACRS	4%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	24.5%	$ 350,000
No. of Systems (WTGs)	1	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$390.77

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0
Cost of Generation ($/mWh)		$390.77	$390.77	$390.77	$390.77	$390.77	$390.77	$390.77	$390.77	$390.77	$390.77
Operating Revenues		**$3,251,969**	**$3,251,969**	**$3,251,969**	**$3,251,969**	**$3,251,969**	**$3,251,969**	**$3,251,969**	**$3,251,969**	**$3,251,969**	**$3,251,969**
Fixed O&M		$375,000	$384,375	$393,984	$403,834	$413,930	$424,278	$434,885	$445,757	$456,901	$468,324
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$182,588	$187,153	$191,831	$196,627	$201,543	$206,581	$211,746	$217,040	$222,466	$228,027
Land Cost		$300,000	$300,000	$300,000	$300,000	$300,000	$347,782	$347,782	$347,782	$347,782	$347,782
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$16,260	$16,260	$16,260	$16,260	$16,260	$16,260	$16,260	$16,260	$16,260	$16,260
Operating Expenses		**$873,848**	**$887,787**	**$902,076**	**$916,721**	**$931,733**	**$994,902**	**$1,010,673**	**$1,026,839**	**$1,043,409**	**$1,060,393**
Interest Payment		$958,587	$939,850	$919,426	$897,165	$872,900	$846,451	$817,622	$786,198	$751,946	$714,612
Principal Payment	$10,650,961	$208,189	$226,926	$247,349	$269,610	$293,875	$320,324	$349,153	$380,577	$414,829	$452,164
Debt Service		**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**
Tax Depreciation - State	$30,431,318	$5,869,615	$9,407,636	$5,675,854	$3,434,454	$3,428,268	$1,746,511	$65,168	$60,288	$59,488	$59,475
Taxable Income - State		($4,100,080)	($7,983,304)	($4,245,388)	($1,996,371)	($1,980,931)	($335,895)	$1,358,506	$1,378,644	$1,397,126	$1,417,489
State Income Tax (benefit)		($246,620)	($480,196)	($255,360)	($120,082)	($119,153)	($20,204)	$81,714	$82,925	$84,037	$85,262
Tax Depreciation - Fed'l	$25,866,620	$4,989,173	$7,996,490	$4,824,475	$2,919,286	$2,914,027	$1,484,534	$55,393	$51,245	$50,565	$50,554
Taxable Income - Fed'l		($2,973,018)	($6,091,963)	($3,138,648)	($1,361,121)	($1,347,538)	($53,714)	$1,286,567	$1,304,762	$1,322,012	$1,341,149
Federal Income Tax (benefit)		($1,040,556)	($2,132,187)	($1,098,527)	($476,392)	($471,638)	($18,800)	$450,299	$456,667	$462,704	$469,402
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$9,129,395									
State Tax Credit		$350,000									
Net Taxes (due)		**$10,766,571**	**$2,612,383**	**$1,353,887**	**$596,474**	**$590,791**	**$39,004**	**($532,013)**	**($539,592)**	**($546,741)**	**($554,664)**
Net Cash Flow	***(19,780,357)***	***11,977,917***	***3,809,789***	***2,537,005***	***1,764,947***	***1,744,252***	***1,129,296***	***542,508***	***518,763***	***495,044***	***470,137***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	1
Capital Cost before construction financing ($/kW)	$7,777
Capital Cost incl construction financing ($/kW)	$7,951
Fixed O&M ($/kW)	$75
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$80,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	21%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	6
Economic Life (years)	20
% of Plant at 5-yr MACRS	93%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	0%
% of Plant at 20-yr MACRS	7%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	24.5%	$ 350,000
No. of Systems (WTGs)	1	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$439.51

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2
Cost of Generation ($/mWh)		$439.51	$439.51	$439.51	$439.51	$439.51	$439.51	$439.51	$439.51	$439.51	$439.51
Operating Revenues		**$800,442**	**$800,442**	**$800,442**	**$800,442**	**$800,442**	**$800,442**	**$800,442**	**$800,442**	**$800,442**	**$800,442**
Fixed O&M		$75,000	$76,875	$78,797	$80,767	$82,786	$84,856	$86,977	$89,151	$91,380	$93,665
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$47,705	$48,898	$50,120	$51,373	$52,658	$53,974	$55,323	$56,707	$58,124	$59,577
Land Cost		$80,000	$80,000	$80,000	$80,000	$80,000	$92,742	$92,742	$92,742	$92,742	$92,742
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$4,002	$4,002	$4,002	$4,002	$4,002	$4,002	$4,002	$4,002	$4,002	$4,002
Operating Expenses		**$206,707**	**$209,775**	**$212,919**	**$216,142**	**$219,446**	**$235,574**	**$239,045**	**$242,602**	**$246,249**	**$249,986**
Interest Payment		$250,452	$245,557	$240,221	$234,405	$228,065	$221,154	$213,622	$205,412	$196,463	$186,708
Principal Payment	$2,782,805	$54,394	$59,289	$64,626	$70,442	$76,782	$83,692	$91,224	$99,434	$108,383	$118,138
Debt Service		**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**
Tax Depreciation - State	$7,950,870	$1,497,134	$2,402,394	$1,454,866	$885,349	$882,692	$455,251	$27,986	$25,891	$25,547	$25,542
Taxable Income - State		($803,852)	($2,057,284)	($1,107,565)	($535,454)	($529,761)	($111,537)	$319,789	$326,537	$332,183	$338,206
State Income Tax (benefit)		($48,352)	($123,746)	($66,620)	($32,208)	($31,865)	($6,709)	$19,235	$19,641	$19,981	$20,343
Tax Depreciation - Fed'l	$6,758,240	$1,272,564	$2,042,035	$1,236,636	$752,546	$750,288	$386,963	$23,788	$22,007	$21,715	$21,710
Taxable Income - Fed'l		($530,930)	($1,573,180)	($822,715)	($370,444)	($365,492)	($36,540)	$304,751	$310,779	$316,035	$321,694
Federal Income Tax (benefit)		($185,826)	($550,613)	($287,950)	($129,655)	($127,922)	($12,789)	$106,663	$108,773	$110,612	$112,593
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$2,385,261									
State Tax Credit		$350,000									
Net Taxes (due)		**$2,969,438**	**$674,359**	**$354,570**	**$161,863**	**$159,787**	**$19,498**	**($125,898)**	**($128,414)**	**($130,593)**	**($132,936)**
Net Cash Flow	***(5,168,066)***	***3,258,327***	***960,179***	***637,246***	***441,316***	***435,937***	***279,520***	***130,653***	***124,579***	***118,754***	***112,673***
IRR	***11%***										

MACRS Depreciation Schedules

Attachment 2

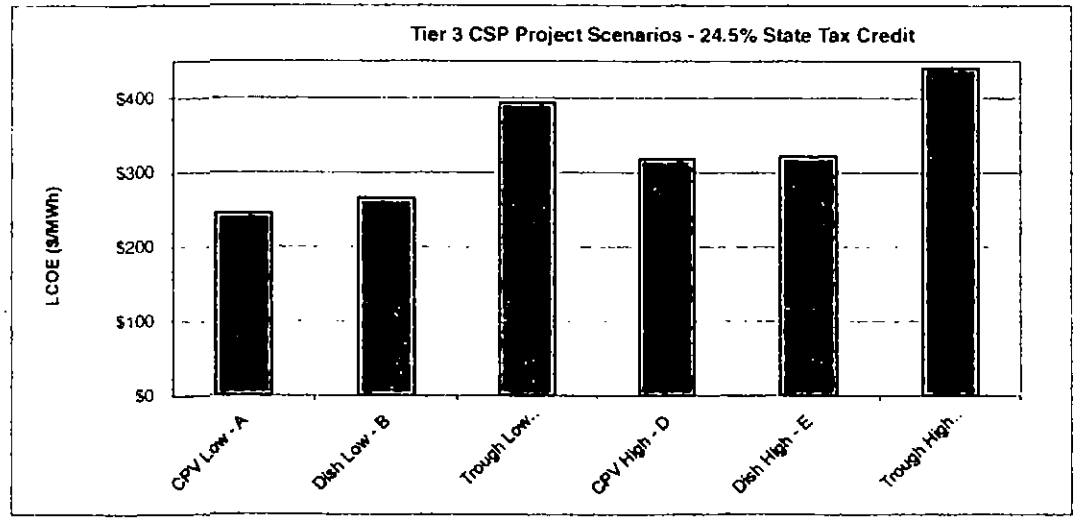
Tier 3 CSP

500kW-5MW

Inputs	CPV Low - A	Dish Low - B	Trough Low - C	CPV High - D	Dish High - E	Trough High - F
Size (kW)	5000	5000	5,000	1,000	1,000	1,000
Production (kWh/kW)	2015	2015	2015	1927	1840	1821
Curtailment (%/year)	0%	0%	0%	0%	0%	0%
Contract life	20	20	20	20	20	20
System life	20	20	20	20	20	20
Annual degradation (%/year)	0.75%	0%	0%	0.75%	0%	0%
Capacity Factor	23%	23%	19%	22%	21%	21%
Capital Costs						
Stirling Dish Capital Costs		$7,067			$7,059	
Solar Trough Capital Costs			$5,435			$7,067
CPV Capital Costs	$5,889			$7,055		
Interconnection	$255	$255	$255	$560	$560	$560
Hawaii Permitting	$30	$30	$30	$150	$150	$150
Total Installed Cost	$6,174	$7,352	$5,720	$8,365	$8,569	$7,777
O&M Costs						
Consolidated O&M ($/kWh)	$0	$0	$75	$50	$80	$75
Other Costs						
Insurance (% Capital/year)	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%
Property Tax ($/year)	$0	$0	$0	$0	$0	$0
Land ($/year)	$250,000	$100,000	$300,000	$50,000	$20,000	$80,000
Financing						
Debt percentage (%)	35%	35%	35%	35%	35%	35%
Debt rate (%)	9%	9%	9%	9%	9%	9%
Debt term (years)	20	20	20	20	20	20
Equity rate (%)	11%	11%	11%	11%	11%	11%
Construction Debt Percentage (%)	80%	80%	80%	80%	80%	80%
Construction Debt Rate (%)	11%	11%	11%	11%	11%	11%
Construction Debt Term (months)	12	12	12	6	6	6
Tax Incentives						
Depreciation Years	5	5	5	5	5	5
ITC ($/MWh) for 10 years	NA	NA	NA	NA	NA	NA
Federal ITC (%)	30%	30%	30%	30%	30%	30%
State ITC (%)	24.5%	24.5%	24.5%	24.5%	24.5%	24.5%
# of systems	35	35	1	5	5	1
Tax Rate (all in)	40%	40%	40%	40%	40%	40%
LCOE ($/MWh)	$246	$266	$395	$319	$323	$441

Midpoint of range (proposed tariff) $344

Key Inputs	A	B	C	D	E	F
Size (kW)	5,000	5,000	5,000	1,000	1,000	1,000
Capacity Factor (%)	23%	23%	19%	22%	21%	21%
Installed Cost ($/kW)	$6,174	$7,352	$5,720	$8,365	$8,569	$7,777
LCOE	$246	$266	$395	$319	$323	$441



Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	5
Capital Cost before construction financing ($/kW)	$6,174
Capital Cost incl construction financing ($/kW)	$6,456
Fixed O&M ($/kW)	$50
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$250,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	23%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	12
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	24.5%	$ 500,000
No. of Systems (WTGs)	35	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$245.88

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		10,074.0	9,998.4	9,923.5	9,849.0	9,775.2	9,701.8	9,629.1	9,556.9	9,485.2	9,414.1
Cost of Generation ($/mWh)		$245.88	$245.88	$245.88	$245.88	$245.88	$245.88	$245.88	$245.88	$245.88	$245.88
Operating Revenues		**$2,477,004**	**$2,458,426**	**$2,439,988**	**$2,421,688**	**$2,403,525**	**$2,385,499**	**$2,367,608**	**$2,349,851**	**$2,332,227**	**$2,314,735**
Fixed O&M		$250,000	$256,250	$262,656	$269,223	$275,953	$282,852	$289,923	$297,171	$304,601	$312,216
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$193,672	$198,514	$203,476	$208,563	$213,777	$219,122	$224,600	$230,215	$235,970	$241,870
Land Cost		$250,000	$250,000	$250,000	$250,000	$250,000	$289,819	$289,819	$289,819	$289,819	$289,819
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$12,385	$12,292	$12,200	$12,108	$12,018	$11,927	$11,838	$11,749	$11,661	$11,574
Operating Expenses		**$706,057**	**$717,056**	**$728,333**	**$739,894**	**$751,748**	**$803,720**	**$816,180**	**$828,954**	**$842,051**	**$855,477**
Interest Payment		$1,016,777	$996,902	$975,239	$951,627	$925,889	$897,834	$867,255	$833,924	$797,593	$757,992
Principal Payment	$11,297,521	$220,827	$240,701	$262,364	$285,977	$311,715	$339,769	$370,349	$403,680	$440,011	$479,612
Debt Service		**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**
Tax Depreciation - State	$32,278,631	$5,951,373	$9,566,079	$5,823,501	$3,570,614	$3,550,698	$1,859,168	$174,111	$168,204	$167,397	$167,219
Taxable Income - State		$2,711,062	($8,821,611)	($5,087,085)	($2,840,447)	($2,824,809)	($1,175,224)	$510,062	$518,769	$525,187	$534,047
State Income Tax (benefit)		$163,070	($530,620)	($305,988)	($170,853)	($169,912)	($70,690)	$30,680	$31,204	$31,590	$32,123
Tax Depreciation - Fed'l	$27,436,837	$5,058,667	$8,131,167	$4,949,976	$3,035,022	$3,018,093	$1,580,293	$147,994	$142,973	$142,287	$142,137
Taxable Income - Fed'l		$3,440,698	($6,856,079)	($3,907,572)	($2,134,002)	($2,122,292)	($825,659)	$505,498	$512,795	$518,706	$527,007
Federal Income Tax (benefit)		$1,204,244	($2,399,628)	($1,367,650)	($746,901)	($742,802)	($288,981)	$176,924	$179,478	$181,547	$184,452
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$9,683,589									
State Tax Credit		$7,908,265									
Net Taxes (due)		**$18,224,540**	**$2,930,248**	**$1,673,638**	**$917,754**	**$912,715**	**$359,670**	**($207,605)**	**($210,682)**	**($213,137)**	**($216,575)**
Net Cash Flow	***(20,981,110)***	***16,757,883***	***3,434,014***	***2,147,690***	***1,361,944***	***1,326,888***	***703,846***	***106,220***	***72,611***	***39,435***	***5,079***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6 9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost		(20,981,110)	-$1,943,660	-$1,954,659	-$1,965,936	-$1,977,498	-$1,989,352	-$2,041,324	-$2,053,783	-$2,066,558	-$2,079,654	-$2,093,081
Tax Benefits			$17,188,335	$3,886,815	$2,623,031	$1,860,026	$1,847,920	$1,287,862	$713,626	$703,639	$694,326	$684,082
Subtotal Cost		(20,981,110)	15,244,675	1,932,156	657,095	(117,472)	(141,432)	(753,462)	(1,340,158)	(1,362,919)	(1,385,328)	(1,408,999)
Real Discount Rate		11%										
NPV of EBIT		(11,504,286)										
Effective tax rate		38.91%										
NPV of output		76,588										
Real Level Cost		150										
Level Cost Grossed for Taxes		246	Adjusted for end of year payment level									
Cost in year 1	$	**245.88**	**This should match cell C25**									
Difference from B&V		**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	8.33%	514,483	2,057,933	2,057,933	-	2,057,933	9,475.6	2,067,409	1,033,704
2	8.33%	514,483	2,057,933	4,115,867	2,067,409	2,057,933	28,514.1	4,153,856	3,110,633
3	8.33%	514,483	2,057,933	6,173,800	4,153,856	2,057,933	47,728.0	6,259,518	5,206,687
4	8.33%	514,483	2,057,933	8,231,733	6,259,518	2,057,933	67,118.7	8,384,570	7,322,044
5	8.33%	514,483	2,057,933	10,289,667	8,384,570	2,057,933	86,688.1	10,529,191	9,456,880
6	8.33%	514,483	2,057,933	12,347,600	10,529,191	2,057,933	106,437.6	12,693,562	11,611,377
7	8.33%	514,483	2,057,933	14,405,533	12,693,562	2,057,933	126,369.0	14,877,865	13,785,713
8	8.33%	514,483	2,057,933	16,463,467	14,877,865	2,057,933	146,484.0	17,082,282	15,980,073
9	8.33%	514,483	2,057,933	18,521,400	17,082,282	2,057,933	166,784.2	19,306,999	18,194,641
10	8.33%	514,483	2,057,933	20,579,333	19,306,999	2,057,933	187,271.3	21,552,204	20,429,602
	100.0%	6,173,800	24,695,200				1,409,631		
Deferred Interest as % of Total Capital Cost							4.566%		

Loan Amount excluding Capitalized Interest	24,695,200
Equity funding during construction	6,173,800
Capitalized interest	1,409,631
Total capital cost including interest during construction	32,278,631

Cost of Generation

All inputs are in blue.

Technology/Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	32,278,631
Fed'l depreciation basis	$	27,436,837
State depreciation basis	$	32,278,631
	0	
	0	-10312400 14
	5	-10102696.94
slope		41940 63997

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	9,343 4	9,273.4	9,203.8	9,134 8	9,066.3	8,998.3	8,930 8	8,863.8	8,797.3	8,731.4
Cost of Generation ($/mWh)	$245.88	$245.88	$245.88	$245 88	$245.88	$245.88	$245.88	$245.88	$245.88	$245.88
Operating Revenues	**$2,297,375**	**$2,280,144**	**$2,263,043**	**$2,246,070**	**$2,229,225**	**$2,212,506**	**$2,195,912**	**$2,179,442**	**$2,163,097**	**$2,146,873**
Fixed O&M	$320,021	$328,022	$336,222	$344,628	$353,243	$362,075	$371,126	$380,405	$389,915	$399,663
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$247,916	$254,114	$260,467	$266,979	$273,653	$280,494	$287,507	$294,695	$302,062	$309,613
Land Cost	$389,492	$389,492	$389,492	$389,492	$389,492	$606,816	$606,816	$606,816	$606,816	$606,816
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$11,487	$11,401	$11,315	$11,230	$11,146	$11,063	$10,980	$10,897	$10,815	$10,734
Operating Expenses	**$968,916**	**$983,028**	**$997,496**	**$1,012,329**	**$1,027,535**	**$1,260,447**	**$1,276,428**	**$1,292,812**	**$1,309,608**	**$1,326,826**
Interest Payment	$714,826	$667,777	$616,492	$560,592	$499,661	$433,246	$360,854	$281,947	$195,937	$102,187
Principal Payment	$522,777	$569,827	$621,112	$677,012	$737,943	$804,357	$876,750	$955,657	$1,041,666	$1,135,416
Debt Service	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**
Tax Depreciation - State	$167,397	$167,219	$167,397	$167,219	$167,397	$119,608	$72,014	$71,997	$72,014	$71,997
Taxable Income - State	$446,235	$462,120	$481,658	$505,930	$534,632	$399,204	$486,616	$532,687	$585,538	$645,863
State Income Tax (benefit)	$26,841	$27,797	$28,972	$30,432	$32,158	$24,012	$29,270	$32,041	$35,220	$38,849
Tax Depreciation - Fed'l	$142,287	$142,137	$142,287	$142,137	$142,287	$101,667	$61,212	$61,198	$61,212	$61,198
Taxable Income - Fed1	$444,503	$459,406	$477,796	$500,581	$527,584	$393,133	$468,148	$511,445	$561,120	$617,814
Federal Income Tax (benefit)	$155,576	$160,792	$167,228	$175,203	$184,654	$137,597	$163,852	$179,006	$196,392	$216,235
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($182,417)**	**($188,589)**	**($196,200)**	**($205,635)**	**($216,812)**	**($161,609)**	**($193,122)**	**($211,047)**	**($231,612)**	**($255,083)**
Net Cash Flow	***(91,562)***	***(129,076)***	***(168,257)***	***(209,497)***	***(252,726)***	***(447,154)***	***(511,242)***	***(562,020)***	***(615,727)***	***(672,639)***
IRR										

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	-$2,206,520	-$2,220,632	-$2,235,100	-$2,249,932	-$2,265,138	-$2,498,051	-$2,514,032	-$2,530,416	-$2,547,211	-$2,564,430
Tax Benefits	$711,485	$698,610	$684,344	$668,305	$650,573	$699,272	$661,302	$636,969	$610,043	$580,260
Subtotal Cost	(1,495,034)	(1,522,022)	(1,550,756)	(1,581,627)	(1,614,565)	(1,798,779)	(1,852,730)	(1,893,447)	(1,937,168)	(1,984,170)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output _										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Difference from B&V										

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	5
Capital Cost before construction financing ($/kW)	$7,352
Capital Cost incl construction financing ($/kW)	$7,687
Fixed O&M ($/kW)	$80
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0 0%
Land ($/yr)	$100,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	23%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Penod (months)	12
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0 500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	24.5%	$ 500,000
No. of Systems (WTGs)	35	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$266.42

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074 0	10,074.0	10,074.0	10,074.0
Cost of Generation ($/mWh)		$266 42	$266.42	$266.42	$266.42	$266 42	$266.42	$266.42	$266.42	$266 42	$266.42
Operating Revenues		**$2,683,921**	**$2,683,921**	**$2,683,921**	**$2,683,921**	**$2,683,921**	**$2,683,921**	**$2,683,921**	**$2,683,921**	**$2,683,921**	**$2,683,921**
Fixed O&M		$400,000	$410,000	$420,250	$430,756	$441,525	$452,563	$463,877	$475,474	$487,361	$499,545
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$230,618	$236,384	$242,293	$248,350	$254,559	$260,923	$267,446	$274,132	$280,986	$288,010
Land Cost		$100,000	$100,000	$100,000	$100,000	$100,000	$115,927	$115,927	$115,927	$115,927	$115,927
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$13,420	$13,420	$13,420	$13,420	$13,420	$13,420	$13,420	$13,420	$13,420	$13,420
Operating Expenses		**$744,038**	**$759,803**	**$775,963**	**$792,526**	**$809,504**	**$842,833**	**$860,671**	**$878,954**	**$897,694**	**$916,903**
Interest Payment		$1,210,745	$1,187,079	$1,161,283	$1,133,166	$1,102,518	$1,069,112	$1,032,699	$993,009	$949,747	$902,592
Principal Payment	$13,452,720	$262,953	$286,619	$312,415	$340,532	$371,180	$404,586	$440,999	$480,689	$523,951	$571,106
Debt Service		**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**
Tax Depreciation - State	$38,436,343	$7,086,701	$11,390,975	$6,934,435	$4,251,771	$4,228,055	$2,213,837	$207,326	$200,292	$199,331	$199,119
Taxable Income - State		$3,059,342	($10,653,937)	($6,187,760)	($3,493,542)	($3,456,157)	($1,441,862)	$583,226	$611,666	$637,149	$665,307
State Income Tax (benefit)		$184,019	($640,834)	($372,194)	($210,137)	($207,888)	($86,728)	$35,081	$36,792	$38,325	$40,018
Tax Depreciation - Fed1	$32,670,892	$6,023,696	$9,682,329	$5,894,270	$3,614,005	$3,593,847	$1,881,762	$176,227	$170,248	$169,431	$169,252
Taxable Income - Fed1		$3,938,327	($8,304,456)	($4,775,401)	($2,645,640)	($2,614,060)	($1,023,058)	$579,243	$604,918	$628,724	$655,157
Federal Income Tax (benefit)		$1,378,415	($2,906,560)	($1,671,390)	($925,974)	($914,921)	($358,070)	$202,735	$211,721	$220,053	$229,305
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$11,530,903									
State Tax Credit		$9,416,904									
Net Taxes (due)		**$19,385,373**	**$3,547,394**	**$2,043,584**	**$1,136,110**	**$1,122,809**	**$444,798**	**($237,816)**	**($248,513)**	**($258,378)**	**($269,323)**
Net Cash Flow	***(24,983,623)***	***19,851,558***	***3,997,814***	***2,477,844***	***1,553,807***	***1,523,528***	***812,188***	***111,736***	***82,756***	***54,151***	***23,997***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(24,983,623)	-$2,217,736	-$2,233,501	-$2,249,661	-$2,266,224	-$2,283,202	-$2,316,532	-$2,334,369	-$2,352,652	-$2,371,392	-$2,390,601
Tax Benefits		$20,429,680	$4,591,701	$3,087,891	$2,180,417	$2,167,116	$1,489,105	$806,491	$795,794	$785,929	$774,984
Subtotal Cost	(24,983,623)	18,211,944	2,358,200	838,230	(85,807)	(116,086)	(827,426)	(1,527,878)	(1,556,858)	(1,585,463)	(1,615,617)
Real Discount Rate	11%										
NPV of EBIT	(13,056,784)										
Effective tax rate	38.91%										
NPV of output	80,223										
Real Level Cost	163										
Level Cost Grossed for Taxes	266	Adjusted for end of year payment level									
Cost in year 1	**$ 266.42**	**This should match cell C25**									
Difference from B&V	**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	8.33%	612,630	2,450,520	2,450,520		2,450,520	11,283.3	2,461,803	1,230,902
2	8.33%	612,630	2,450,520	4,901,040	2,461,803	2,450,520	33,953.7	4,946,277	3,704,040
3	8.33%	612,630	2,450,520	7,351,560	4,946,277	2,450,520	56,832.9	7,453,630	6,199,953
4	8.33%	612,630	2,450,520	9,802,080	7,453,630	2,450,520	79,922.8	9,984,073	8,718,851
5	8.33%	612,630	2,450,520	12,252,600	9,984,073	2,450,520	103,225.3	12,537,818	11,260,945
6	8.33%	612,630	2,450,520	14,703,120	12,537,818	2,450,520	126,742.5	15,115,080	13,826,449
7	8.33%	612,630	2,450,520	17,153,640	15,115,080	2,450,520	150,476.1	17,716,077	16,415,579
8	8.33%	612,630	2,450,520	19,604,160	17,716,077	2,450,520	174,428.4	20,341,025	19,028,551
9	8.33%	612,630	2,450,520	22,054,680	20,341,025	2,450,520	198,601.2	22,990,146	21,665,586
10	8.33%	612,630	2,450,520	24,505,200	22,990,146	2,450,520	222,996.6	25,663,663	24,326,904
	100.0%	7,351,560	29,406,240				1,678,543		
Deferred Interest as % of Total Capital Cost							4.566%		

Loan Amount excluding Capitalized Interest	29,406,240
Equity funding during construction	7,351,560
Capitalized Interest	1,678,543
Total capital cost including interest during construction	38,436,343

Cost of Generation

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	38,436,343
Fed'l depreciation basis	$	32,670,892
State depreciation basis	$	38,436,343
	0	
	0	-11704054.32
	5	-11484400 6
slope		43930.74431

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	10,074.0	10,074.0	10,074 0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0
Cost of Generation ($/mWh)	$266.42	$266.42	$266.42	$266.42	$266.42	$266.42	$266.42	$266.42	$266.42	$266 42
Operating Revenues	**$2,683,921**	**$2,683,921**	**$2,683,921**	**$2,683,921**	**$2,683,921**	**$2,683,921**	**$2,683,921**	**$2,683,921**	**$2,683,921**	**$2,683,921**
Fixed O&M	$512,034	$524,835	$537,956	$551,404	$565,190	$579,319	$593,802	$608,647	$623,863	$639,460
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$295,211	$302,591	$310,156	$317,910	$325,857	$334,004	$342,354	$350,913	$359,685	$368,678
Land Cost	$155,797	$155,797	$155,797	$155,797	$155,797	$242,726	$242,726	$242,726	$242,726	$242,726
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$13,420	$13,420	$13,420	$13,420	$13,420	$13,420	$13,420	$13,420	$13,420	$13,420
Operating Expenses	**$976,461**	**$996,642**	**$1,017,328**	**$1,038,530**	**$1,060,263**	**$1,169,469**	**$1,192,302**	**$1,215,706**	**$1,239,695**	**$1,264,284**
Interest Payment	$851,192	$795,167	$734,099	$667,535	$594,980	$515,895	$429,693	$335,733	$233,316	$121,681
Principal Payment	$622,506	$678,532	$739,599	$806,163	$878,718	$957,803	$1,044,005	$1,137,965	$1,240,382	$1,352,017
Debt Service	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**
Tax Depreciation - State	$199,331	$199,119	$199,331	$199,119	$199,331	$142,426	$85,751	$85,732	$85,751	$85,732
Taxable Income - State	$656,937	$692,993	$733,164	$778,736	$829,347	$856,131	$976,174	$1,046,750	$1,125,159	$1,212,224
State Income Tax (benefit)	$39,515	$41,684	$44,100	$46,841	$49,885	$51,496	$58,717	$62,962	$67,678	$72,915
Tax Depreciation - Fed'l	$169,431	$169,252	$169,431	$169,252	$169,431	$121,062	$72,889	$72,872	$72,889	$72,872
Taxable Income - Fed'l	$647,322	$681,177	$718,964	$761,763	$809,361	$825,998	$930,320	$996,648	$1,070,343	$1,152,168
Federal Income Tax (benefit)	$226,563	$238,412	$251,637	$266,617	$283,276	$289,099	$325,612	$348,827	$374,620	$403,259
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($266,077)**	**($280,096)**	**($295,737)**	**($313,458)**	**($333,162)**	**($340,596)**	**($384,329)**	**($411,789)**	**($442,298)**	**($476,174)**
Net Cash Flow	***(32,315)***	***(66,515)***	***(102,842)***	***(141,766)***	***(183,202)***	***(299,842)***	***(366,408)***	***(417,272)***	***(471,770)***	***(530,235)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0 000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0 000%
100.0000%	4 4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	-$2,450,159	-$2,470,340	-$2,491,026	-$2,512,228	-$2,533,961	-$2,643,167	-$2,666,000	-$2,689,404	-$2,713,393	-$2,737,982
Tax Benefits	$778,229	$764,211	$748,570	$730,849	$711,145	$703,711	$659,978	$632,518	$602,009	$568,133
Subtotal Cost	(1,671,929)	(1,706,129)	(1,742,456)	(1,781,380)	(1,822,816)	(1,939,456)	(2,006,022)	(2,056,886)	(2,111,384)	(2,169,849)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

[redacted]

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue.

Technology Assumptions	
Project Capacity (MW)	5
Capital Cost before construction financing ($/kW)	$5,820
Capital Cost incl construction financing ($/kW)	$6,086
Fixed O&M ($/kW)	$75
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$300,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	19%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	12
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	24.5%	$ 350,000
No. of Systems (WTGs)	1	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$394.67

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0
Cost of Generation ($/mWh)		$394.67	$394.67	$394.67	$394.67	$394.67	$394.67	$394.67	$394.67	$394.67	$394.67
Operating Revenues		**$3,284,479**	**$3,284,479**	**$3,284,479**	**$3,284,479**	**$3,284,479**	**$3,284,479**	**$3,284,479**	**$3,284,479**	**$3,284,479**	**$3,284,479**
Fixed O&M		$375,000	$384,375	$393,984	$403,834	$413,930	$424,278	$434,885	$445,757	$456,901	$468,324
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$182,588	$187,153	$191,831	$196,627	$201,543	$206,581	$211,746	$217,040	$222,466	$228,027
Land Cost		$300,000	$300,000	$300,000	$300,000	$300,000	$347,782	$347,782	$347,782	$347,782	$347,782
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$16,422	$16,422	$16,422	$16,422	$16,422	$16,422	$16,422	$16,422	$16,422	$16,422
Operating Expenses		**$874,010**	**$887,950**	**$902,238**	**$916,884**	**$931,895**	**$995,064**	**$1,010,836**	**$1,027,001**	**$1,043,571**	**$1,060,556**
Interest Payment		$958,587	$939,850	$919,426	$897,165	$872,900	$846,451	$817,622	$786,198	$751,946	$714,612
Principal Payment	$10,650,961	$208,189	$226,926	$247,349	$269,610	$293,875	$320,324	$349,153	$380,577	$414,829	$452,164
Debt Service		**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**
Tax Depreciation - State	$30,431,318	$5,610,774	$9,018,610	$5,490,221	$3,366,267	$3,347,491	$1,752,768	$164,147	$158,578	$157,817	$157,649
Taxable Income - State		($3,808,892)	($7,561,931)	($4,027,406)	($1,895,836)	($1,867,807)	($309,804)	$1,291,875	$1,312,702	$1,331,145	$1,351,663
State Income Tax (benefit)		($229,105)	($454,850)	($242,248)	($114,035)	($112,349)	($18,635)	$77,706	$78,959	$80,068	$81,303
Tax Depreciation - Fed'l	$25,866,620	$4,769,158	$7,665,819	$4,666,887	$2,861,327	$2,845,367	$1,489,853	$139,525	$134,791	$134,144	$134,002
Taxable Income - Fed'l		($2,738,171)	($5,754,289)	($2,961,624)	($1,276,862)	($1,253,334)	($28,254)	$1,238,791	$1,257,530	$1,274,749	$1,294,007
Federal Income Tax (benefit)		($958,360)	($2,014,001)	($1,036,569)	($446,902)	($438,667)	($9,889)	$433,577	$440,135	$446,162	$452,903
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$9,129,395									
State Tax Credit		$350,000									
Net Taxes (due)		**$10,666,860**	**$2,468,851**	**$1,278,817**	**$560,936**	**$551,016**	**$28,524**	**($511,283)**	**($519,094)**	**($526,230)**	**($534,205)**
Net Cash Flow	***(19,780,357)***	***11,910,553***	***3,698,605***	***2,494,283***	***1,761,756***	***1,736,824***	***1,151,163***	***595,585***	***571,608***	***547,902***	***522,943***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost		(19,780,357)	-$2,040,786	-$2,054,725	-$2,069,013	-$2,083,659	-$2,098,670	-$2,161,839	-$2,177,611	-$2,193,777	-$2,210,347	-$2,227,331
Tax Benefits			$11,944,843	$3,746,834	$2,556,800	$1,838,919	$1,828,998	$1,306,506	$766,700	$758,888	$751,752	$743,777
Subtotal Cost		(19,780,357)	9,904,057	1,692,109	487,786	(244,740)	(269,672)	(855,333)	(1,410,911)	(1,434,888)	(1,458,594)	(1,483,553)
Real Discount Rate		11%										
NPV of EBIT		(15,978,390)										
Effective tax rate		38.91%										
NPV of output		66,271										
Real Level Cost		241										
Level Cost Grossed for Taxes		395	Adjusted for end of year payment level									
Cost in year 1	**$**	**394.67**	**This should match cell C25**									
Diffference from B&V		**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	8.33%	485,039	1,940,157	1,940,157	-	1,940,157	8,933.3	1,949,091	974,545
2	8.33%	485,039	1,940,157	3,880,315	1,949,091	1,940,157	26,882.3	3,916,130	2,932,610
3	8.33%	485,039	1,940,157	5,820,472	3,916,130	1,940,157	44,996.5	5,901,284	4,908,707
4	8.33%	485,039	1,940,157	7,760,629	5,901,284	1,940,157	63,277.5	7,904,719	6,903,002
5	8.33%	485,039	1,940,157	9,700,787	7,904,719	1,940,157	81,726.9	9,928,603	8,915,661
6	8.33%	485,039	1,940,157	11,640,944	9,926,603	1,940,157	100,346.2	11,967,107	10,946,855
7	8.33%	485,039	1,940,157	13,581,101	11,967,107	1,940,157	119,136.9	14,026,401	12,996,754
8	8.33%	485,039	1,940,157	15,521,259	14,026,401	1,940,157	138,100.7	16,104,659	15,065,530
9	8.33%	485,039	1,940,157	17,461,416	16,104,659	1,940,157	157,239.1	18,202,055	17,153,357
10	8.33%	485,039	1,940,157	19,401,573	18,202,055	1,940,157	176,553.8	20,318,766	19,260,411
	100.0%	5,820,472	23,281,888				1,328,958		
Deferred Interest as % of Total Capital Cost							4.566%		

Loan Amount excluding Capitalized Interest	23,281,888
Equity funding during construction	5,820,472
Capitalized Interest	1,328,958
Total capital cost including interest during construction	30,431,318

Cost of Generation

All inputs are in blue.

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	30,431,318
Fed'l depreciation basis	$	25,866,620
State depreciation basis	$	30,431,318
	0	
	0	-14322970.82
	5	-14141517.75
slope		36290 61486

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0
Cost of Generation ($/mWh)	$394.67	$394.67	$394.67	$394.67	$394.67	$394.67	$394.67	$394.67	$394.67	$394.67
Operating Revenues	**$3,284,479**	**$3,284,479**	**$3,284,479**	**$3,284,479**	**$3,284,479**	**$3,284,479**	**$3,284,479**	**$3,284,479**	**$3,284,479**	**$3,284,479**
Fixed O&M	$480,032	$492,032	$504,333	$516,942	$529,865	$543,112	$556,690	$570,607	$584,872	$599,494
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$233,728	$239,571	$245,560	$251,699	$257,992	$264,442	$271,053	$277,829	$284,775	$291,894
Land Cost	$467,390	$467,390	$467,390	$467,390	$467,390	$728,179	$728,179	$728,179	$728,179	$728,179
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$16,422	$16,422	$16,422	$16,422	$16,422	$16,422	$16,422	$16,422	$16,422	$16,422
Operating Expenses	**$1,197,572**	**$1,215,416**	**$1,233,706**	**$1,252,454**	**$1,271,670**	**$1,552,155**	**$1,572,344**	**$1,593,037**	**$1,614,248**	**$1,635,989**
Interest Payment	$673,917	$629,560	$581,210	$528,509	$471,065	$408,451	$340,202	$265,811	$184,724	$96,339
Principal Payment	$492,858	$537,216	$585,565	$638,266	$695,710	$758,324	$826,573	$900,965	$982,051	$1,070,436
Debt Service	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**
Tax Depreciation - State	$157,817	$157,649	$157,817	$157,649	$157,817	$112,763	$67,892	$67,877	$67,892	$67,877
Taxable Income - State	$1,255,173	$1,281,854	$1,311,746	$1,345,867	$1,383,927	$1,211,110	$1,304,041	$1,357,754	$1,417,615	$1,484,274
State Income Tax (benefit)	$75,499	$77,104	$78,902	$80,954	$83,243	$72,848	$78,438	$81,669	$85,270	$89,279
Tax Depreciation - Fed'l	$134,144	$134,002	$134,144	$134,002	$134,144	$95,849	$57,708	$57,695	$57,708	$57,695
Taxable Income - Fed'l	$1,203,347	$1,228,398	$1,256,517	$1,288,560	$1,324,356	$1,155,176	$1,235,787	$1,286,267	$1,342,529	$1,405,176
Federal Income Tax (benefit)	$421,171	$429,939	$439,781	$450,996	$463,525	$404,312	$432,525	$450,193	$469,885	$491,812
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($496,670)**	**($507,043)**	**($518,682)**	**($531,950)**	**($546,768)**	**($477,160)**	**($510,963)**	**($531,862)**	**($555,155)**	**($581,091)**
Net Cash Flow	***423,461***	***395,245***	***365,315***	***333,300***	***299,266***	***88,389***	***34,397***	***(7,196)***	***(51,699)***	***(99,376)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	-$2,364,348	-$2,382,192	-$2,400,482	-$2,419,229	-$2,438,445	-$2,718,930	-$2,739,119	-$2,759,812	-$2,781,023	-$2,802,764
Tax Benefits	$781,312	$770,940	$759,300	$746,033	$731,215	$800,823	$767,019	$746,120	$722,828	$696,892
Subtotal Cost	(1,583,035)	(1,611,252)	(1,641,181)	(1,673,196)	(1,707,230)	(1,918,107)	(1,972,100)	(2,013,692)	(2,058,195)	(2,105,873)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

[redacted]

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue.

Technology Assumptions	
Project Capacity (MW)	1
Capital Cost before construction financing ($/kW)	$8,365
Capital Cost incl construction financing ($/kW)	$8,553
Fixed O&M ($/kW)	$50
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$50,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	22%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	6
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	24.5%	$ 500,000
No. of Systems (WTGs)	5	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$318.82

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		1,927.2	1,912.7	1,898.4	1,884.2	1,870.0	1,856.0	1,842.1	1,828.3	1,814.6	1,800.9
Cost of Generation ($/mWh)		$318.82	$318.82	$318.82	$318.82	$318.82	$318.82	$318.82	$318.82	$318.82	$318.82
Operating Revenues		**$614,434**	**$609,826**	**$605,252**	**$600,713**	**$596,207**	**$591,736**	**$587,298**	**$582,893**	**$578,521**	**$574,182**
Fixed O&M		$50,000	$51,250	$52,531	$53,845	$55,191	$56,570	$57,985	$59,434	$60,920	$62,443
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$51,318	$52,601	$53,916	$55,264	$56,645	$58,061	$59,513	$61,001	$62,526	$64,089
Land Cost		$50,000	$50,000	$50,000	$50,000	$50,000	$57,964	$57,964	$57,964	$57,964	$57,964
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$3,072	$3,049	$3,026	$3,004	$2,981	$2,959	$2,936	$2,914	$2,893	$2,871
Operating Expenses		**$154,390**	**$156,900**	**$159,473**	**$162,112**	**$164,817**	**$175,554**	**$178,398**	**$181,313**	**$184,302**	**$187,367**
Interest Payment		$269,418	$264,152	$258,412	$252,155	$245,335	$237,901	$229,799	$220,967	$211,340	$200,847
Principal Payment	$2,993,533	$58,513	$63,779	$69,519	$75,776	$82,596	$90,030	$98,132	$106,964	$116,591	$127,084
Debt Service		**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**
Tax Depreciation - State	$8,552,950	$1,576,950	$2,534,748	$1,543,068	$946,115	$940,837	$492,629	$46,135	$44,569	$44,356	$44,309
Taxable Income - State		$709,149	($2,345,974)	($1,355,700)	($759,668)	($754,782)	($314,348)	$132,967	$136,044	$138,523	$141,660
State Income Tax (benefit)		$42,655	($141,110)	($81,545)	($45,694)	($45,400)	($18,908)	$7,998	$8,183	$8,332	$8,521
Tax Depreciation - Fed'l	$7,270,008	$1,340,408	$2,154,536	$1,311,608	$804,197	$799,712	$418,734	$39,214	$37,884	$37,702	$37,662
Taxable Income - Fed'l		$903,036	($1,824,651)	($1,042,695)	($572,057)	($568,256)	($221,546)	$131,889	$134,546	$136,845	$139,786
Federal Income Tax (benefit)		$316,063	($638,628)	($364,943)	($200,220)	($198,890)	($77,541)	$46,161	$47,091	$47,896	$48,925
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$2,565,885									
State Tax Credit		$2,095,473									
Net Taxes (due)		**$4,302,640**	**$779,738**	**$446,489**	**$245,914**	**$244,290**	**$96,449**	**($54,159)**	**($55,274)**	**($56,228)**	**($57,446)**
Net Cash Flow	***(5,559,418)***	***4,434,753***	***904,733***	***564,337***	***356,584***	***347,749***	***184,700***	***26,810***	***18,375***	***10,060***	***1,439***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost		(5,559,418)	-$482,321	-$484,831	-$487,404	-$490,043	-$492,748	-$503,485	-$506,329	-$509,244	-$512,233	-$515,297
Tax Benefits			$4,541,715	$1,017,020	$681,991	$479,650	$476,273	$326,692	$174,357	$171,528	$168,873	$165,967
Subtotal Cost		(5,559,418)	4,059,394	532,189	194,587	(10,393)	(16,475)	(176,793)	(331,972)	(337,716)	(343,360)	(349,330)
Real Discount Rate		11%										
NPV of EBIT		(2,853,699)										
Effective tax rate		38.91%										
NPV of output		14,652										
Real Level Cost		195										
Level Cost Grossed for Taxes		319	Adjusted for end of year payment level									
Cost in year 1	**$**	**318.82**	**This should match cell C25**									
Diffference from B&V		**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	16.67%	278,848	1,115,392	1,115,392	-	1,115,392	5,135.8	1,120,528	560,264
2	16.67%	278,848	1,115,392	2,230,784	1,120,528	1,115,392	15,454.6	2,251,374	1,685,951
3	16.67%	278,848	1,115,392	3,346,176	2,251,374	1,115,392	25,868.4	3,392,635	2,822,004
4	16.67%	278,848	1,115,392	4,461,568	3,392,635	1,115,392	36,378.1	4,544,405	3,968,520
5	16.67%	278,848	1,115,392	5,576,960	4,544,405	1,115,392	46,984.6	5,706,781	5,125,593
6	16.67%	278,848	1,115,392	6,692,352	5,706,781	1,115,392	57,688.8	6,879,862	6,293,322
7	0.00%								
8	0.00%								
9	0.00%								
10	0.00%								
	100.0%	1,673,088	6,692,352				187,510		
Deferred Interest as % of Total Capital Cost							2.241%		
Loan Amount excluding Capitalized Interest			6,692,352						
Equity funding during construction			1,673,088						
Capitalized interest			187,510						
Total capital cost including interest during construction			8,552,950						

Cost of Generation

All inputs are in blue.

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalatron	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	8,552,950
Fed'l depreciation basis	$	7,270,008
State depreciation basis	$	8,552,950
	0	
	0	-2558045.734
	5	-2517928.6
slope		8023.426776

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	1,787.4	1,774.0	1,760.7	1,747.5	1,734.4	1,721.4	1,708.5	1,695.7	1,683.0	1,670.3
Cost of Generation ($/mWh)	$318.82	$318.82	$318.82	$318.82	$318.82	$318.82	$318.82	$318.82	$318.82	$318.82
Operating Revenues	**$569,876**	**$565,602**	**$561,360**	**$557,150**	**$552,971**	**$548,824**	**$544,708**	**$540,622**	**$536,568**	**$532,543**
Fixed O&M	$64,004	$65,604	$67,244	$68,926	$70,649	$72,415	$74,225	$76,081	$77,983	$79,933
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$65,691	$67,333	$69,017	$70,742	$72,511	$74,323	$76,181	$78,086	$80,038	$82,039
Land Cost	$77,898	$77,898	$77,898	$77,898	$77,898	$121,363	$121,363	$121,363	$121,363	$121,363
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$2,849	$2,828	$2,807	$2,786	$2,765	$2,744	$2,724	$2,703	$2,683	$2,663
Operating Expenses	**$210,443**	**$213,664**	**$216,966**	**$220,352**	**$223,822**	**$270,845**	**$274,493**	**$278,233**	**$282,067**	**$285,997**
Interest Payment	$189,409	$176,942	$163,353	$148,541	$132,396	$114,798	$95,616	$74,708	$51,918	$27,077
Principal Payment	$138,522	$150,989	$164,577	$179,389	$195,535	$213,133	$232,315	$253,223	$276,013	$300,854
Debt Service	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**
Tax Depreciation - State	$44,356	$44,309	$44,356	$44,309	$44,356	$31,693	$19,082	$19,077	$19,082	$19,077
Taxable Income - State	$125,668	$130,687	$136,685	$143,948	$152,397	$131,487	$155,516	$168,604	$183,501	$200,392
State Income Tax (benefit)	$7,559	$7,861	$8,222	$8,658	$9,167	$7,909	$9,354	$10,142	$11,038	$12,054
Tax Depreciation - Fed'l	$37,702	$37,662	$37,702	$37,662	$37,702	$26,939	$16,219	$16,216	$16,219	$16,216
Taxable Income - Fed'l	$124,762	$129,472	$135,116	$141,936	$149,883	$128,332	$149,024	$161,324	$175,326	$191,200
Federal Income Tax (benefit)	$43,667	$45,315	$47,291	$49,678	$52,459	$44,916	$52,158	$56,463	$61,364	$66,920
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($51,226)**	**($53,176)**	**($55,512)**	**($58,336)**	**($61,626)**	**($52,825)**	**($61,513)**	**($66,605)**	**($72,402)**	**($78,973)**
Net Cash Flow	***(19,724)***	***(29,169)***	***(39,050)***	***(49,469)***	***(60,408)***	***(102,778)***	***(119,229)***	***(132,147)***	***(145,832)***	***(160,358)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue.

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	*-$538,374*	*-$541,595*	*-$544,897*	*-$548,283*	*-$551,753*	*-$598,776*	*-$602,424*	*-$606,164*	*-$609,998*	*-$613,928*
Tax Benefits	$170,512	$166,898	$162,911	$158,450	$153,534	$160,721	$150,432	$143,750	$136,376	$128,238
Subtotal Cost	(367,862)	(374,697)	(381,986)	(389,833)	(398,220)	(438,056)	(451,993)	(462,414)	(473,622)	(485,691)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	1
Capital Cost before construction financing ($/kW)	$8,562
Capital Cost incl construction financing ($/kW)	$8,754
Fixed O&M ($/kW)	$80
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$20,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	21%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	6
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	24.5%	$ 500,000
No. of Systems (WTGs)	5	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$323.22

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6
Cost of Generation ($/mWh)		$323.22	$323.22	$323.22	$323.22	$323.22	$323.22	$323.22	$323.22	$323.22	$323.22
Operating Revenues		**$594,589**	**$594,589**	**$594,589**	**$594,589**	**$594,589**	**$594,589**	**$594,589**	**$594,589**	**$594,589**	**$594,589**
Fixed O&M		$80,000	$82,000	$84,050	$86,151	$88,305	$90,513	$92,775	$95,095	$97,472	$99,909
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$52,524	$53,837	$55,183	$56,563	$57,977	$59,426	$60,912	$62,435	$63,996	$65,596
Land Cost		$20,000	$20,000	$20,000	$20,000	$20,000	$23,185	$23,185	$23,185	$23,185	$23,185
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$2,973	$2,973	$2,973	$2,973	$2,973	$2,973	$2,973	$2,973	$2,973	$2,973
Operating Expenses		**$155,497**	**$158,810**	**$162,206**	**$165,687**	**$169,255**	**$176,097**	**$179,846**	**$183,688**	**$187,626**	**$191,663**
Interest Payment		$275,752	$270,362	$264,487	$258,083	$251,103	$243,495	$235,202	$226,162	$216,309	$205,569
Principal Payment	$3,063,916	$59,889	$65,279	$71,154	$77,558	$84,538	$92,146	$100,439	$109,479	$119,332	$130,072
Debt Service		**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**
Tax Depreciation - State	$8,754,045	$1,614,027	$2,594,344	$1,579,348	$968,359	$962,958	$504,211	$47,219	$45,617	$45,398	$45,350
Taxable Income - State		$694,053	($2,428,928)	($1,411,453)	($797,541)	($788,727)	($329,215)	$132,322	$139,121	$145,255	$152,006
State Income Tax (benefit)		$41,747	($146,100)	($84,899)	($47,972)	($47,442)	($19,802)	$7,959	$8,368	$8,737	$9,143
Tax Depreciation - Fed'l	$7,440,938	$1,371,923	$2,205,193	$1,342,446	$823,105	$818,514	$428,579	$40,136	$38,775	$38,589	$38,548
Taxable Income - Fed'l		$894,410	($1,893,677)	($1,089,652)	($604,315)	($596,842)	($233,781)	$131,446	$137,596	$143,328	$149,666
Federal Income Tax (benefit)		$313,043	($662,787)	($381,378)	($211,510)	($208,895)	($81,823)	$46,006	$48,158	$50,165	$52,383
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$2,626,213									
State Tax Credit		$2,144,741									
Net Taxes (due)		**$4,416,164**	**$808,887**	**$466,277**	**$259,482**	**$256,337**	**$101,625**	**($53,965)**	**($56,527)**	**($58,902)**	**($61,526)**
Net Cash Flow	***(5,690,129)***	***4,519,814***	***909,024***	***563,018***	***352,743***	***346,029***	***184,476***	***25,137***	***18,733***	***12,420***	***5,758***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost		(5,690,129)	-$491,138	-$494,451	-$497,847	-$501,328	-$504,896	-$511,739	-$515,487	-$519,329	-$523,268	-$527,304
Tax Benefits			$4,647,517	$1,040,240	$697,630	$490,835	$487,690	$332,979	$177,388	$174,826	$172,451	$169,827
Subtotal Cost		(5,690,129)	4,156,378	545,788	199,783	(10,493)	(17,206)	(178,760)	(338,099)	(344,503)	(350,816)	(357,477)
Real Discount Rate		11%										
NPV of EBIT		(2,892,566)										
Effective tax rate		38.91%										
NPV of output		14,649										
Real Level Cost		197										
Level Cost Grossed for Taxes		323	Adjusted for end of year payment level									
Cost in year 1	**$**	**323.22**	**This should match cell C25**									
Diffference from B&V		**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest 7.10%	End Balance	Avg. Balance
1	16.67%	285,404	1,141,617	1,141,617		1,141,617	5,256.5	1,146,873	573,437
2	16.67%	285,404	1,141,617	2,283,234	1,146,873	1,141,617	15,817.9	2,304,308	1,725,591
3	16.67%	285,404	1,141,617	3,424,850	2,304,308	1,141,617	26,476.6	3,472,401	2,888,355
4	16.67%	285,404	1,141,617	4,566,467	3,472,401	1,141,617	37,233.4	4,651,252	4,061,826
5	16.67%	285,404	1,141,617	5,708,084	4,651,252	1,141,617	48,089.3	5,840,958	5,246,105
6	16.67%	285,404	1,141,617	6,849,701	5,840,958	1,141,617	59,045.1	7,041,620	6,441,289
7	0.00%								
8	0.00%								
9	0.00%								
10	0.00%								
	100.0%	1,712,425	6,849,701				191,919		
Deferred Interest as % of Total Capital Cost							2.241%		
Loan Amount excluding Capitalized Interest			6,849,701						
Equity funding during construction			1,712,425						
Capitalized Interest			191,919						
Total capital cost including interest during construction			8,754,045						

Cost of Generation

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	8,754,045
Fed'l depreciation basis	$	7,440,938
State depreciation basis	$	8,754,045
	0	
	0	-2592885.848
	5	-2552775.168
slope		8022.135917

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6
Cost of Generation ($/mWh)	$323.22	$323.22	$323.22	$323.22	$323.22	$323.22	$323.22	$323.22	$323.22	$323.22
Operating Revenues	**$594,589**	**$594,589**	**$594,589**	**$594,589**	**$594,589**	**$594,589**	**$594,589**	**$594,589**	**$594,589**	**$594,589**
Fixed O&M	$102,407	$104,967	$107,591	$110,281	$113,038	$115,864	$118,760	$121,729	$124,773	$127,892
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$67,236	$68,916	$70,639	$72,405	$74,215	$76,071	$77,973	$79,922	$81,920	$83,968
Land Cost	$31,159	$31,159	$31,159	$31,159	$31,159	$48,545	$48,545	$48,545	$48,545	$48,545
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$2,973	$2,973	$2,973	$2,973	$2,973	$2,973	$2,973	$2,973	$2,973	$2,973
Operating Expenses	**$203,775**	**$208,016**	**$212,363**	**$216,818**	**$221,386**	**$243,453**	**$248,251**	**$253,170**	**$258,211**	**$263,378**
Interest Payment	$193,863	$181,103	$167,194	$152,034	$135,509	$117,497	$97,865	$76,465	$53,139	$27,713
Principal Payment	$141,778	$154,539	$168,447	$183,607	$200,132	$218,144	$237,777	$259,177	$282,502	$307,928
Debt Service	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**
Tax Depreciation - State	$45,398	$45,350	$45,398	$45,350	$45,398	$32,438	$19,530	$19,526	$19,530	$19,526
Taxable Income - State	$151,553	$160,120	$169,634	$180,386	$192,295	$201,200	$228,943	$245,429	$263,709	$283,971
State Income Tax (benefit)	$9,116	$9,631	$10,203	$10,850	$11,567	$12,102	$13,771	$14,763	$15,862	$17,081
Tax Depreciation - Fed'l	$38,589	$38,548	$38,589	$38,548	$38,589	$27,572	$16,601	$16,597	$16,601	$16,597
Taxable Income - Fed'l	$149,247	$157,292	$166,240	$176,338	$187,539	$193,964	$218,102	$233,595	$250,777	$269,819
Federal Income Tax (benefit)	$52,236	$55,052	$58,184	$61,718	$65,639	$67,887	$76,336	$81,758	$87,772	$94,437
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($61,352)**	**($64,683)**	**($68,387)**	**($72,569)**	**($77,205)**	**($79,990)**	**($90,106)**	**($96,521)**	**($103,634)**	**($111,518)**
Net Cash Flow	***(6,179)***	***(13,751)***	***(21,802)***	***(30,439)***	***(39,643)***	***(64,495)***	***(79,410)***	***(90,743)***	***(102,897)***	***(115,948)***
IRR										

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	-$539,416	-$543,657	-$548,004	-$552,460	-$557,027	-$579,094	-$583,892	-$588,811	-$593,852	-$599,019
Tax Benefits	$170,001	$166,670	$162,966	$158,784	$154,148	$151,363	$141,247	$134,832	$127,719	$119,835
Subtotal Cost	(369,415)	(376,987)	(385,038)	(393,675)	(402,879)	(427,731)	(442,646)	(453,979)	(466,133)	(479,184)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

[redacted]

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	1
Capital Cost before construction financing ($/kW)	$7,777
Capital Cost incl construction financing ($/kW)	$7,951
Fixed O&M ($/kW)	$75
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$80,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	21%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	6
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	24.5%	$ 350,000
No. of Systems (WTGs)	1	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$441.27

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2
Cost of Generation ($/mWh)		$441.27	$441.27	$441.27	$441.27	$441.27	$441.27	$441.27	$441.27	$441.27	$441.27
Operating Revenues		**$803,636**	**$803,636**	**$803,636**	**$803,636**	**$803,636**	**$803,636**	**$803,636**	**$803,636**	**$803,636**	**$803,636**
Fixed O&M		$75,000	$76,875	$78,797	$80,767	$82,786	$84,856	$86,977	$89,151	$91,380	$93,665
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$47,705	$48,898	$50,120	$51,373	$52,658	$53,974	$55,323	$56,707	$58,124	$59,577
Land Cost		$80,000	$80,000	$80,000	$80,000	$80,000	$92,742	$92,742	$92,742	$92,742	$92,742
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$4,018	$4,018	$4,018	$4,018	$4,018	$4,018	$4,018	$4,018	$4,018	$4,018
Operating Expenses		**$206,723**	**$209,791**	**$212,935**	**$216,158**	**$219,462**	**$235,590**	**$239,061**	**$242,618**	**$246,265**	**$250,002**
Interest Payment		$250,452	$245,557	$240,221	$234,405	$228,065	$221,154	$213,622	$205,412	$196,463	$186,708
Principal Payment	$2,782,805	$54,394	$59,289	$64,626	$70,442	$76,782	$83,692	$91,224	$99,434	$108,383	$118,138
Debt Service		**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**
Tax Depreciation - State	$7,950,870	$1,465,942	$2,356,316	$1,434,444	$879,513	$874,608	$457,950	$42,887	$41,432	$41,233	$41,189
Taxable Income - State		($769,482)	($2,008,028)	($1,083,965)	($526,441)	($518,499)	($111,059)	$308,066	$314,174	$319,675	$325,736
State Income Tax (benefit)		($46,284)	($120,783)	($65,200)	($31,665)	($31,188)	($6,680)	$18,530	$18,898	$19,228	$19,593
Tax Depreciation - Fed'l	$6,758,240	$1,246,050	$2,002,869	$1,219,278	$747,586	$743,417	$389,258	$36,454	$35,217	$35,048	$35,011
Taxable Income - Fed'l		($503,306)	($1,533,798)	($803,598)	($362,848)	($356,120)	($35,686)	$295,969	$301,491	$306,632	$312,321
Federal Income Tax (benefit)		($176,157)	($536,829)	($281,259)	($126,997)	($124,642)	($12,490)	$103,589	$105,522	$107,321	$109,312
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$2,385,261									
State Tax Credit		$350,000									
Net Taxes (due)		**$2,957,703**	**$657,612**	**$346,460**	**$158,662**	**$155,830**	**$19,170**	**($122,119)**	**($124,419)**	**($126,550)**	**($128,905)**
Net Cash Flow	***(5,168,066)***	***3,249,769***	***946,610***	***632,314***	***441,293***	***435,157***	***282,370***	***137,609***	***131,752***	***125,975***	***119,882***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(5,168,066)	-$511,570	-$514,637	-$517,782	-$521,005	-$524,308	-$540,436	-$543,907	-$547,464	-$551,111	-$554,849
Tax Benefits		$3,270,395	$970,305	$659,152	$471,355	$468,522	$331,863	$190,573	$188,273	$186,143	$183,787
Subtotal Cost	(5,168,066)	2,758,825	455,667	141,371	(49,650)	(55,786)	(208,573)	(353,334)	(359,191)	(364,968)	(371,061)
Real Discount Rate	11%										
NPV of EBIT	(3,909,541)										
Effective tax rate	38.91%										
NPV of output	14,503										
Real Level Cost	270										
Level Cost Grossed for Taxes	441	Adjusted for end of year payment level									
Cost in year 1	$ 441.27	**This should match cell C25**									
Diffference from B&V	0.00%	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	16.67%	259,219	1,036,875	1,036,875	-	1,036,875	4,774.2	1,041,649	520,824
2	16.67%	259,219	1,036,875	2,073,749	1,041,649	1,036,875	14,366.6	2,092,890	1,567,270
3	16.67%	259,219	1,036,875	3,110,624	2,092,890	1,036,875	24,047.4	3,153,812	2,623,351
4	16.67%	259,219	1,036,875	4,147,499	3,153,812	1,036,875	33,817.3	4,224,504	3,689,158
5	16.67%	259,219	1,036,875	5,184,373	4,224,504	1,036,875	43,677.2	5,305,056	4,764,780
6	16.67%	259,219	1,036,875	6,221,248	5,305,056	1,036,875	53,627.8	6,395,558	5,850,307
7	0.00%	-	-	-	-	-	-	-	-
8	0.00%	-	-	-	-	-	-	-	-
9	0.00%	-	-	-	-	-	-	-	-
10	0.00%	-	-	-	-	-	-	-	-
	100.0%	1,555,312	6,221,248				174,310		
Deferred Interest as % of Total Capital Cost							2.241%		

Loan Amount excluding Capitalized Interest	6,221,248
Equity funding during construction	1,555,312
Capitalized Interest	174,310
Total capital cost including interest during construction	7,950,870

Cost of Generation

All inputs are in blue

Technology Assumptions
Project Capacity (MW)
Capital Cost before construction f
Capital Cost incl construction fina
Fixed O&M ($/kW)
Fixed O&M Escalation
Variable O&M ($/MWh)
Variable O&M Escalation
Insurance (% CapEx/year)
Fuel Cost ($/MBtu)
Fuel Cost Escalation
Land ($/yr)
Heat Rate (Btu/kWh)
Production Degradation (%/year)
Capacity Factor

Calculation		
Cap Cost inc Const Financing	$	7,950,870
Fed'l depreciation basis	$	6,758,240
State depreciation basis	$	7,950,870
	0	
	0	-3504498.405
	5	-3464788.833
slope		7941 914558

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	1,821.2	1,821.2	1,821.2	1,821.2	1,821 2	1,821.2	1,821 2	1,821.2	1,821.2	1,821.2
Cost of Generation ($/mWh)	$441.27	$441.27	$441.27	$441.27	$441 27	$441.27	$441.27	$441.27	$441.27	$441.27
Operating Revenues	**$803,636**	**$803,636**	**$803,636**	**$803,636**	**$803,636**	**$803,636**	**$803,636**	**$803,636**	**$803,636**	**$803,636**
Fixed O&M	$96,006	$98,406	$100,867	$103,388	$105,973	$108,622	$111,338	$114,121	$116,974	$119,899
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$61,067	$62,593	$64,158	$65,762	$67,406	$69,091	$70,819	$72,589	$74,404	$76,264
Land Cost	$124,637	$124,637	$124,637	$124,637	$124,637	$194,181	$194,181	$194,181	$194,181	$194,181
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$4,018	$4,018	$4,018	$4,018	$4,018	$4,018	$4,018	$4,018	$4,018	$4,018
Operating Expenses	**$285,729**	**$289,655**	**$293,680**	**$297,806**	**$302,035**	**$375,913**	**$380,356**	**$384,910**	**$389,577**	**$394,362**
Interest Payment	$176,076	$164,487	$151,854	$138,085	$123,076	$106,717	$88,886	$69,449	$48,263	$25,171
Principal Payment	$128,770	$140,360	$152,992	$166,761	$181,770	$198,129	$215,961	$235,397	$256,583	$279,676
Debt Service	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**
Tax Depreciation - State	$41,233	$41,189	$41,233	$41,189	$41,233	$29,462	$17,738	$17,734	$17,738	$17,734
Taxable Income - State	$300,598	$308,304	$316,868	$326,555	$337,291	$291,544	$316,656	$331,543	$348,057	$366,369
State Income Tax (benefit)	$18,081	$18,544	$19,060	$19,642	$20,288	$17,536	$19,047	$19,942	$20,936	$22,037
Tax Depreciation - Fed'l	$35,048	$35,011	$35,048	$35,011	$35,048	$25,043	$15,078	$15,074	$15,078	$15,074
Taxable Income - Fed'l	$288,702	$295,938	$303,993	$313,091	$323,188	$278,427	$300,270	$314,260	$329,782	$346,992
Federal Income Tax (benefit)	$101,046	$103,578	$106,398	$109,582	$113,116	$97,449	$105,094	$109,991	$115,424	$121,447
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($119,127)**	**($122,123)**	**($125,457)**	**($129,224)**	**($133,404)**	**($114,986)**	**($124,141)**	**($129,933)**	**($136,359)**	**($143,484)**
Net Cash Flow	***93,934***	***87,011***	***79,652***	***71,759***	***63,351***	***7,891***	***(5,708)***	***(16,054)***	***(27,147)***	***(39,057)***
IRR										

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0 000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%
Exp and Debt Cost	-$590,575	-$594,502	-$598,527	-$602,653	-$606,881	-$680,759	-$685,202	-$689,756	-$694,424	-$699,208
Tax Benefits	*$193,566*	*$190,570*	*$187,235*	*$183,468*	*$179,289*	*$197,707*	*$188,551*	*$182,759*	*$176,333*	*$169,208*
Subtotal Cost	(397,009)	(403,932)	(411,291)	(419,184)	(427,593)	(483,052)	(496,651)	(506,997)	(518,090)	(530,000)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

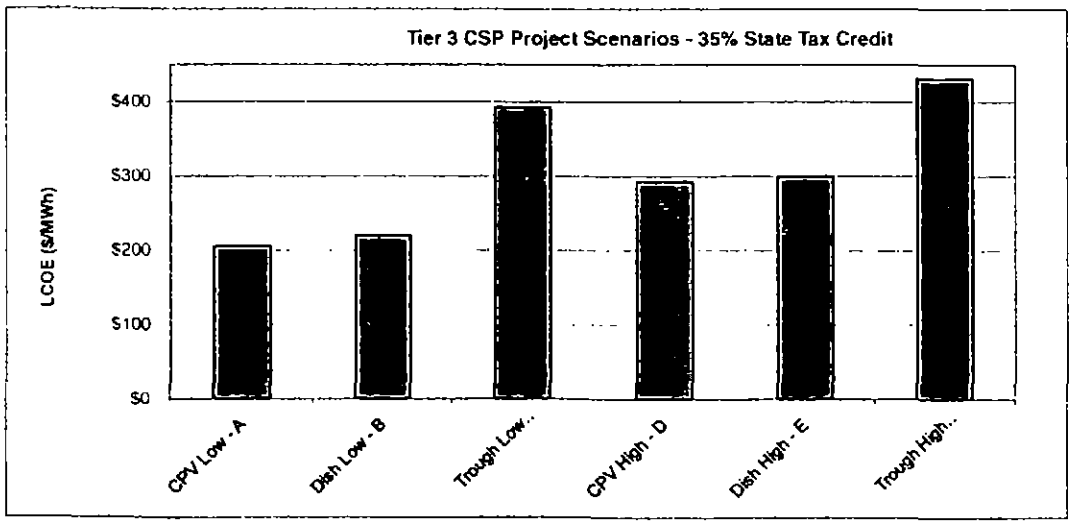
Tier 3 CSP

500kW-5MW

Inputs	CPV Low - A	Dish Low - B	Trough Low - C	CPV High - D	Dish High - E	Trough High - F
Size (kW)	5000	5000	5,000	1,000	1,000	1,000
Production (kWh/kW)	2015	2014	2015	1827	1840	1821
Curtailment (%/year)	0%	0%	0%	0%	0%	0%
Contract life	20	20	20	20	20	20
System life	20	20	20	20	20	20
Annual degradation (%/year)	0.75%	0%	0%	0.75%	0%	0%
Capacity Factor	23%	23%	19%	22%	21%	21%
Capital Costs						
Stirling Dish Capital Costs		$7,067			$7,067	
Solar Trough Capital Costs			$6,675			$7,067
CPV Capital Costs	$5,389			$7,655		
Interconnection	$255	$255	$255	$561	$561	$561
Hawaii Permitting	$30	$30	$30	$150	$150	$150
Total Installed Cost	$6,174	$7,352	$6,820	$8,365	$8,542	$7,777
O&M Costs						
Consolidated O&M ($/kWh)	50	80	$75	$50	$80	$75
Other Costs						
Insurance (% Cap Ex/year)	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%
Property Tax ($/year)	$0	$0	$0	$0	$0	$0
Land ($/year)	$250,000	$100,000	$300,000	$50,000	$20,000	$80,000
Financing						
Debt percentage (%)	35%	35%	35%	35%	35%	35%
Debt rate (%)	9%	9%	9%	9%	9%	9%
Debt tenor (years)	20	20	20	20	20	20
Equity rate (%)	11%	11%	11%	11%	11%	11%
Construction Debt Percentage (%)	80%	80%	80%	80%	80%	80%
Construction Debt Rate (%)	11%	11%	11%	11%	11%	11%
Construction Debt Term (months)	12	12	12	6	6	6
Tax Incentives						
Depreciation Years	5	5	5	5	5	5
PTC ($/MWh) for 10 years	NA	NA	NA	NA	NA	NA
Federal ITC (%)	30%	30%	30%	30%	30%	30%
State ITC (%)	35%	35%	35%	35%	35%	35%
# of systems	1	1	1	1	1	1
Tax Rate (all in)	40%	40%	40%	40%	40%	40%
LCOE ($/MWh)	$206	$221	$393	$294	$301	$432

Midpoint of range (proposed tariff) **$319**

Key Inputs	A	B	C	D	E	F
Size (kW)	5,000	5,000	5,000	1,000	1,000	1,000
Capacity Factor (%)	23%	23%	19%	22%	21%	21%
Installed Cost ($/kW)	$6,174	$7,352	$6,820	$8,365	$8,542	$7,777
LCOE	$206	$221	$393	$294	$301	$432



Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	5
Capital Cost before construction financing ($/kW)	$6,174
Capital Cost incl construction financing ($/kW)	$6,456
Fixed O&M ($/kW)	$50
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$250,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0 75%
Capacity Factor	23%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	12
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	35.0%	$ 500,000
No. of Systems (WTGs)	35	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$205.81

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		10,074 0	9,998.4	9,923.5	9,849.0	9,775.2	9,701.8	9,629.1	9,556.9	9,485.2	9,414.1
Cost of Generation ($/mWh)		$205.81	$205.81	$205.81	$205.81	$205.81	$205 81	$205.81	$205 81	$205.81	$205.81
Operating Revenues		**$2,073,361**	**$2,057,811**	**$2,042,377**	**$2,027,059**	**$2,011,856**	**$1,996,767**	**$1,981,792**	**$1,966,928**	**$1,952,176**	**$1,937,535**
Fixed O&M		$250,000	$256,250	$262,656	$269,223	$275,953	$282,852	$289,923	$297,171	$304,601	$312,216
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$193,672	$198,514	$203,476	$208,563	$213,777	$219,122	$224,600	$230,215	$235,970	$241,870
Land Cost		$250,000	$250,000	$250,000	$250,000	$250,000	$289,819	$289,819	$289,819	$289,819	$289,819
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$10,367	$10,289	$10,212	$10,135	$10,059	$9,984	$9,909	$9,835	$9,761	$9,688
Operating Expenses		**$704,039**	**$715,053**	**$726,345**	**$737,921**	**$749,790**	**$801,776**	**$814,251**	**$827,039**	**$840,150**	**$853,591**
Interest Payment		$1,016,777	$996,902	$975,239	$951,627	$925,889	$897,834	$867,255	$833,924	$797,593	$757,992
Principal Payment	$11,297,521	$220,827	$240,701	$262,364	$285,977	$311,715	$339,769	$370,349	$403,680	$440,011	$479,612
Debt Service		**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**
Tax Depreciation - State	$32,278,631	$5,951,373	$9,566,079	$5,823,501	$3,570,614	$3,550,698	$1,859,168	$174,111	$168,204	$167,397	$167,219
Taxable Income - State		$5,698,694	($9,220,224)	($5,482,708)	($3,233,102)	($3,214,520)	($1,562,012)	$126,175	$137,761	$147,036	$158,732
State Income Tax (benefit)		$342,776	($554,596)	($329,785)	($194,471)	($193,353)	($93,955)	$7,589	$8,286	$8,844	$9,548
Tax Depreciation - Fed'l	$27,436,837	$5,058,667	$8,131,167	$4,949,976	$3,035,022	$3,018,093	$1,580,293	$147,994	$142,973	$142,287	$142,137
Taxable Income - Fed'l		$6,248,623	($7,230,715)	($4,279,398)	($2,503,039)	($2,488,562)	($1,189,181)	$144,702	$154,705	$163,302	$174,268
Federal Income Tax (benefit)		$2,187,018	($2,530,750)	($1,497,789)	($876,064)	($870,997)	($416,213)	$50,646	$54,147	$57,156	$60,994
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$9,683,589									
State Tax Credit		$11,297,521									
Net Taxes (due)		**$18,451,316**	**$3,085,347**	**$1,827,574**	**$1,070,535**	**$1,064,350**	**$510,169**	**($58,235)**	**($62,433)**	**($66,000)**	**($70,541)**
Net Cash Flow	***(20,981,110)***	***18,583,094***	***3,190,501***	***1,906,003***	***1,122,069***	***1,088,813***	***467,556***	***(128,298)***	***(160,148)***	***(191,578)***	***(224,202)***
IRR	*11%*										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(20,981,110)	-$1,941,642	-$1,952,656	-$1,963,948	-$1,975,525	-$1,987,394	-$2,039,380	-$2,051,854	-$2,064,643	-$2,077,754	-$2,091,195
Tax Benefits		$19,258,055	$3,886,036	$2,622,258	$1,859,259	$1,847,158	$1,287,106	$712,875	$702,894	$693,587	$683,349
Subtotal Cost	(20,981,110)	17,316,413	1,933,380	658,310	(116,266)	(140,235)	(752,274)	(1,338,979)	(1,361,749)	(1,384,167)	(1,407,846)
Real Discount Rate	11%										
NPV of EBIT	(9,629,592)										
Effective tax rate	38.91%										
NPV of output	76,588										
Real Level Cost	126										
Level Cost Grossed for Taxes	206	Adjusted for end of year payment level									
Cost in year 1	**$ 205.81**	**This should match cell C25**									
Diffference from B&V	**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	8.33%	514,483	2,057,933	2,057,933	-	2,057,933	9,475.6	2,067,409	1,033,704
2	8.33%	514,483	2,057,933	4,115,867	2,067,409	2,057,933	28,514.1	4,153,856	3,110,633
3	8.33%	514,483	2,057,933	6,173,800	4,153,856	2,057,933	47,728.0	6,259,518	5,206,687
4	8.33%	514,483	2,057,933	8,231,733	6,259,518	2,057,933	67,118.7	8,384,570	7,322,044
5	8.33%	514,483	2,057,933	10,289,667	8,384,570	2,057,933	86,688.1	10,529,191	9,456,880
6	8.33%	514,483	2,057,933	12,347,600	10,529,191	2,057,933	106,437.6	12,693,562	11,611,377
7	8.33%	514,483	2,057,933	14,405,533	12,693,562	2,057,933	126,369.0	14,877,865	13,785,713
8	8.33%	514,483	2,057,933	16,463,467	14,877,865	2,057,933	146,484.0	17,082,282	15,980,073
9	8.33%	514,483	2,057,933	18,521,400	17,082,282	2,057,933	166,784.2	19,306,999	18,194,641
10	8.33%	514,483	2,057,933	20,579,333	19,306,999	2,057,933	187,271.3	21,552,204	20,429,602
	100.0%	6,173,800	24,695,200				1,409,631		
Deferred interest as % of Total Capital Cost							4.566%		

Loan Amount excluding Capitalized Interest	24,695,200
Equity funding during construction	6,173,800
Capitalized interest	1,409,631
Total capital cost including interest during construction	32,278,631

Cost of Generation

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	32,278,631
Fed'l depreciation basis	$	27,436,837
State depreciation basis	$	32,278,631
	0	
	0	-8631931.721
	5	-8422228.521
slope		41940.63997

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	9,343.4	9,273.4	9,203.8	9,134.8	9,066.3	8,998.3	8,930.8	8,863.8	8,797.3	8,731.4
Cost of Generation ($/mWh)	$205.81	$205.81	$205.81	$205.81	$205.81	$205.81	$205.81	$205.81	$205.81	$205.81
Operating Revenues	**$1,923,003**	**$1,908,581**	**$1,894,266**	**$1,880,059**	**$1,865,959**	**$1,851,964**	**$1,838,075**	**$1,824,289**	**$1,810,607**	**$1,797,027**
Fixed O&M	$320,021	$328,022	$336,222	$344,628	$353,243	$362,075	$371,126	$380,405	$389,915	$399,663
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$247,916	$254,114	$260,467	$266,979	$273,653	$280,494	$287,507	$294,695	$302,062	$309,613
Land Cost	$389,492	$389,492	$389,492	$389,492	$389,492	$606,816	$606,816	$606,816	$606,816	$606,816
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$9,615	$9,543	$9,471	$9,400	$9,330	$9,260	$9,190	$9,121	$9,053	$8,985
Operating Expenses	**$967,044**	**$981,171**	**$995,652**	**$1,010,499**	**$1,025,718**	**$1,258,644**	**$1,274,639**	**$1,291,036**	**$1,307,845**	**$1,325,077**
Interest Payment	$714,826	$667,777	$616,492	$560,592	$499,661	$433,246	$360,854	$281,947	$195,937	$102,187
Principal Payment	$522,777	$569,827	$621,112	$677,012	$737,943	$804,357	$876,750	$955,657	$1,041,666	$1,135,416
Debt Service	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**
Tax Depreciation - State	$167,397	$167,219	$167,397	$167,219	$167,397	$119,608	$72,014	$71,997	$72,014	$71,997
Taxable Income - State	$73,736	$92,414	$114,725	$141,749	$173,183	$40,465	$130,568	$179,309	$234,811	$297,766
State Income Tax (benefit)	$4,435	$5,559	$6,901	$8,526	$10,417	$2,434	$7,854	$10,785	$14,124	$17,911
Tax Depreciation - Fed'l	$142,287	$142,137	$142,287	$142,137	$142,287	$101,667	$61,212	$61,198	$61,212	$61,198
Taxable Income - Fed'l	$94,410	$111,938	$132,934	$158,306	$187,875	$55,973	$133,516	$179,323	$231,489	$290,655
Federal Income Tax (benefit)	$33,044	$39,178	$46,527	$55,407	$65,756	$19,590	$46,731	$62,763	$81,021	$101,729
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($37,479)**	**($44,737)**	**($53,428)**	**($63,933)**	**($76,173)**	**($22,024)**	**($54,584)**	**($73,548)**	**($95,145)**	**($119,640)**
Net Cash Flow	***(319,123)***	***(354,931)***	***(392,417)***	***(431,976)***	***(473,536)***	***(666,308)***	***(728,753)***	***(777,899)***	***(829,987)***	***(885,293)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

	100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
	100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
	100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
	100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%
Exp and Debt Cost		-$2,204,648	-$2,218,774	-$2,233,256	-$2,248,102	-$2,263,322	-$2,496,248	-$2,512,243	-$2,528,640	-$2,545,449	-$2,562,680
Tax Benefits		$710,757	$697,887	$683,627	$667,593	$649,867	$698,570	$660,606	$636,278	$609,358	$579,579
Subtotal Cost		(1,493,891)	(1,520,887)	(1,549,629)	(1,580,509)	(1,613,455)	(1,797,678)	(1,851,637)	(1,892,362)	(1,936,091)	(1,983,101)
Real Discount Rate											
NPV of EBIT											
Effective tax rate											
NPV of output											
Real Level Cost											
Level Cost Grossed for Taxes											
Cost in year 1											
Diffference from B&V											

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	5
Capital Cost before construction financing ($/kW)	$7,352
Capital Cost incl construction financing ($/kW)	$7,687
Fixed O&M ($/kW)	$80
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	*0.0%*
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$100,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	23%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Penod (months)	12
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	35.0%	$ 500,000
No. of Systems (WTGs)	35	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$220.87

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0
Cost of Generation ($/mWh)		$220.87	$220.87	$220.87	$220.87	$220.87	$220.87	$220.87	$220.87	$220.87	$220.87
Operating Revenues		**$2,225,050**	**$2,225,050**	**$2,225,050**	**$2,225,050**	**$2,225,050**	**$2,225,050**	**$2,225,050**	**$2,225,050**	**$2,225,050**	**$2,225,050**
Fixed O&M		$400,000	$410,000	$420,250	$430,756	$441,525	$452,563	$463,877	$475,474	$487,361	$499,545
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$230,618	$236,384	$242,293	$248,350	$254,559	$260,923	$267,446	$274,132	$280,986	$288,010
Land Cost		$100,000	$100,000	$100,000	$100,000	$100,000	$115,927	$115,927	$115,927	$115,927	$115,927
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$11,125	$11,125	$11,125	$11,125	$11,125	$11,125	$11,125	$11,125	$11,125	$11,125
Operating Expenses		**$741,743**	**$757,509**	**$773,668**	**$790,232**	**$807,210**	**$840,539**	**$858,376**	**$876,659**	**$895,400**	**$914,608**
Interest Payment		$1,210,745	$1,187,079	$1,161,283	$1,133,166	$1,102,518	$1,069,112	$1,032,699	$993,009	$949,747	$902,592
Principal Payment	$13,452,720	$262,953	$286,619	$312,415	$340,532	$371,180	$404,586	$440,999	$480,689	$523,951	$571,106
Debt Service		**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**
Tax Depreciation - State	$38,436,343	$7,086,701	$11,390,975	$6,934,435	$4,251,771	$4,228,055	$2,213,837	$207,326	$200,292	$199,331	$199,119
Taxable Income - State		$6,638,581	($11,110,513)	($6,644,337)	($3,950,119)	($3,912,733)	($1,898,438)	$126,649	$155,089	$180,572	$208,731
State Income Tax (benefit)		$399,311	($668,297)	($399,657)	($237,600)	($235,351)	($114,191)	$7,618	$9,329	$10,861	$12,555
Tax Depreciation - Fed'l	$32,670,892	$6,023,696	$9,682,329	$5,894,270	$3,614,005	$3,593,847	$1,881,762	$176,227	$170,248	$169,431	$169,252
Taxable Income - Fed'l		$7,302,275	($8,733,570)	($5,204,515)	($3,074,753)	($3,043,174)	($1,452,172)	$150,130	$175,805	$199,610	$226,043
Federal Income Tax (benefit)		$2,555,796	($3,056,749)	($1,821,580)	($1,076,164)	($1,065,111)	($508,260)	$52,545	$61,532	$69,864	$79,115
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$11,530,903									
State Tax Credit		$13,452,720									
Net Taxes (due)		**$22,028,516**	**$3,725,047**	**$2,221,237**	**$1,313,763**	**$1,300,462**	**$622,451**	**($60,163)**	**($70,860)**	**($80,725)**	**($91,670)**
Net Cash Flow	***(24,983,623)***	***22,038,124***	***3,718,890***	***2,198,920***	***1,274,883***	***1,244,604***	***533,264***	***(167,188)***	***(196,168)***	***(224,773)***	***(254,927)***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(24,983,623)	-$2,215,441	-$2,231,207	-$2,247,366	-$2,263,930	-$2,280,908	-$2,314,237	-$2,332,074	-$2,350,357	-$2,369,098	-$2,388,306
Tax Benefits		$22,894,277	$4,590,808	$3,086,998	$2,179,525	$2,166,223	$1,488,213	$805,598	$794,901	$785,036	$774,091
Subtotal Cost	(24,983,623)	20,678,836	2,359,601	839,632	(84,405)	(114,685)	(826,025)	(1,526,476)	(1,555,456)	(1,584,061)	(1,614,215)
Real Discount Rate	11%										
NPV of EBIT	(10,824,460)										
Effective tax rate	38.91%										
NPV of output	80,223										
Real Level Cost	135										
Level Cost Grossed for Taxes	221	Adjusted for end of year payment level									
Cost in year 1	**$ 220.87**	**This should match cell C25**									
Difffference from B&V	**-0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	8.33%	612,630	2,450,520	2,450,520		2,450,520	11,283.3	2,461,803	1,230,902
2	8.33%	612,630	2,450,520	4,901,040	2,461,803	2,450,520	33,953.7	4,946,277	3,704,040
3	8.33%	612,630	2,450,520	7,351,560	4,946,277	2,450,520	56,832.9	7,453,630	6,199,953
4	8.33%	612,630	2,450,520	9,802,080	7,453,630	2,450,520	79,922.8	9,984,073	8,718,851
5	8.33%	612,630	2,450,520	12,252,600	9,984,073	2,450,520	103,225.3	12,537,818	11,260,945
6	8.33%	612,630	2,450,520	14,703,120	12,537,818	2,450,520	126,742.5	15,115,080	13,826,449
7	8.33%	612,630	2,450,520	17,153,640	15,115,080	2,450,520	150,476.1	17,716,077	16,415,579
8	8.33%	612,630	2,450,520	19,604,160	17,716,077	2,450,520	174,428.4	20,341,025	19,028,551
9	8.33%	612,630	2,450,520	22,054,680	20,341,025	2,450,520	198,601.2	22,990,146	21,665,586
10	8.33%	612,630	2,450,520	24,505,200	22,990,146	2,450,520	222,996.6	25,663,663	24,326,904
	100.0%	7,351,560	29,406,240				1,678,543		
Deferred interest as % of Total Capital Cost							4.566%		

Loan Amount excluding Capitalized Interest	29,406,240
Equity funding during construction	7,351,560
Capitalized interest	1,678,543
Total capital cost including interest during construction	38,436,343

Cost of Generation

All inputs are in blue

Technology Assumptions
Project Capacity (MW)
Capital Cost before construction f
Capital Cost incl construction fina
Fixed O&M ($/kW)
Fixed O&M Escalation
Variable O&M ($/MWh)
Variable O&M Escalation
Insurance (% CapEx/year)
Fuel Cost ($/MBtu)
Fuel Cost Escalation
Land ($/yr)
Heat Rate (Btu/kWh)
Production Degradation (%/year)
Capacity Factor

Calculation		
Cap Cost inc Const Financing	$	38,436,343
Fed'l depreciation basis	$	32,670,892
State depreciation basis	$	38,436,343
	0	
	0	-9703007.249
	5	-9483353.527
slope		43930.74431

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	10,074 0	10,074.0	10,074.0	10,074.0	10,074 0	10,074.0	10,074.0	10,074.0	10,074 0	10,074.0
Cost of Generation ($/mWh)	$220.87	$220.87	$220.87	$220.87	$220.87	$220.87	$220.87	$220.87	$220.87	$220.87
Operating Revenues	**$2,225,050**	**$2,225,050**	**$2,225,050**	**$2,225,050**	**$2,225,050**	**$2,225,050**	**$2,225,050**	**$2,225,050**	**$2,225,050**	**$2,225,050**
Fixed O&M	$512,034	$524,835	$537,956	$551,404	$565,190	$579,319	$593,802	$608,647	$623,863	$639,460
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$295,211	$302,591	$310,156	$317,910	$325,857	$334,004	$342,354	$350,913	$359,685	$368,678
Land Cost	$155,797	$155,797	$155,797	$155,797	$155,797	$242,726	$242,726	$242,726	$242,726	$242,726
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$11,125	$11,125	$11,125	$11,125	$11,125	$11,125	$11,125	$11,125	$11,125	$11,125
Operating Expenses	**$974,166**	**$994,348**	**$1,015,033**	**$1,036,236**	**$1,057,969**	**$1,167,174**	**$1,190,008**	**$1,213,411**	**$1,237,400**	**$1,261,989**
Interest Payment	$851,192	$795,167	$734,099	$667,535	$594,980	$515,895	$429,693	$335,733	$233,316	$121,681
Principal Payment	$622,506	$678,532	$739,599	$806,163	$878,718	$957,803	$1,044,005	$1,137,965	$1,240,382	$1,352,017
Debt Service	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**
Tax Depreciation - State	$199,331	$199,119	$199,331	$199,119	$199,331	$142,426	$85,751	$85,732	$85,751	$85,732
Taxable Income - State	$200,360	$236,416	$276,587	$322,160	$372,770	$399,554	$519,598	$590,173	$668,582	$755,647
State Income Tax (benefit)	$12,052	$14,220	$16,637	$19,378	$22,422	$24,033	$31,254	$35,499	$40,215	$45,452
Tax Depreciation - Fed'l	$169,431	$169,252	$169,431	$169,252	$169,431	$121,062	$72,889	$72,872	$72,889	$72,872
Taxable Income - Fed'l	$218,208	$252,064	$289,850	$332,650	$380,248	$396,885	$501,207	$567,534	$641,230	$723,055
Federal Income Tax (benefit)	$76,373	$88,222	$101,448	$116,427	$133,087	$138,910	$175,422	$198,637	$224,430	$253,069
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($88,425)**	**($102,443)**	**($118,084)**	**($135,805)**	**($155,509)**	**($162,943)**	**($206,676)**	**($234,136)**	**($264,646)**	**($298,521)**
Net Cash Flow	***(311,239)***	***(345,439)***	***(381,766)***	***(420,689)***	***(462,126)***	***(578,766)***	***(645,332)***	***(696,196)***	***(750,694)***	***(809,159)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

	100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
	100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
	100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
	100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%
Exp and Debt Cost		-$2,447,864	-$2,468,046	-$2,488,731	-$2,509,934	-$2,531,667	-$2,640,873	-$2,663,706	-$2,687,110	-$2,711,099	-$2,735,687
Tax Benefits		$777,337	$763,319	$747,677	$729,956	$710,253	$702,818	$659,085	$631,625	$601,116	$567,240
Subtotal Cost		(1,670,528)	(1,704,727)	(1,741,054)	(1,779,978)	(1,821,414)	(1,938,054)	(2,004,620)	(2,055,484)	(2,109,983)	(2,168,447)
Real Discount Rate											
NPV of EBIT											
Effective tax rate											
NPV of output											
Real Level Cost											
Level Cost Grossed for Taxes											
Cost in year 1											
Diffference from B&V											

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	5
Capital Cost before construction financing ($/kW)	$5,820
Capital Cost incl construction financing ($/kW)	$6,086
Fixed O&M ($/kW)	$75
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$300,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	19%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	12
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	35.0%	$ 500,000
No. of Systems (WTGs)	1	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$392.62

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0
Cost of Generation ($/mWh)		$392.62	$392.62	$392.62	$392.62	$392.62	$392.62	$392.62	$392.62	$392.62	$392.62
Operating Revenues		**$3,267,424**	**$3,267,424**	**$3,267,424**	**$3,267,424**	**$3,267,424**	**$3,267,424**	**$3,267,424**	**$3,267,424**	**$3,267,424**	**$3,267,424**
Fixed O&M		$375,000	$384,375	$393,984	$403,834	$413,930	$424,278	$434,885	$445,757	$456,901	$468,324
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$182,588	$187,153	$191,831	$196,627	$201,543	$206,581	$211,746	$217,040	$222,466	$228,027
Land Cost		$300,000	$300,000	$300,000	$300,000	$300,000	$347,782	$347,782	$347,782	$347,782	$347,782
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$16,337	$16,337	$16,337	$16,337	$16,337	$16,337	$16,337	$16,337	$16,337	$16,337
Operating Expenses		**$873,925**	**$887,865**	**$902,153**	**$916,798**	**$931,810**	**$994,979**	**$1,010,750**	**$1,026,916**	**$1,043,486**	**$1,060,470**
Interest Payment		$958,587	$939,850	$919,426	$897,165	$872,900	$846,451	$817,622	$786,198	$751,946	$714,612
Principal Payment	$10,650,961	$208,189	$226,926	$247,349	$269,610	$293,875	$320,324	$349,153	$380,577	$414,829	$452,164
Debt Service		**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**
Tax Depreciation - State	$30,431,318	$5,610,774	$9,018,610	$5,490,221	$3,366,267	$3,347,491	$1,752,768	$164,147	$158,578	$157,817	$157,649
Taxable Income - State		($3,675,862)	($7,578,900)	($4,044,376)	($1,912,806)	($1,884,776)	($326,774)	$1,274,905	$1,295,732	$1,314,175	$1,334,693
State Income Tax (benefit)		($221,103)	($455,871)	($243,269)	($115,055)	($113,369)	($19,655)	$76,686	$77,938	$79,048	$80,282
Tax Depreciation - Fed'l	$25,866,620	$4,769,158	$7,665,819	$4,666,687	$2,861,327	$2,845,367	$1,489,853	$139,525	$134,791	$134,144	$134,002
Taxable Income - Fed'l		($2,613,142)	($5,770,238)	($2,977,573)	($1,292,810)	($1,269,283)	($44,203)	$1,222,842	$1,241,581	$1,258,800	$1,278,059
Federal Income Tax (benefit)		($914,600)	($2,019,583)	($1,042,151)	($452,484)	($444,249)	($15,471)	$427,995	$434,553	$440,580	$447,320
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$9,129,395									
State Tax Credit		$500,000									
Net Taxes (due)		**$10,765,098**	**$2,475,454**	**$1,285,420**	**$567,539**	**$557,618**	**$35,127**	**($504,680)**	**($512,492)**	**($519,628)**	**($527,602)**
Net Cash Flow	***(19,780,357)***	***11,991,822***	***3,688,238***	***2,483,916***	***1,751,389***	***1,726,457***	***1,140,796***	***585,218***	***561,241***	***537,535***	***512,576***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost		(19,780,357)	-$2,040,700	-$2,054,640	-$2,068,928	-$2,083,574	-$2,098,585	-$2,161,754	-$2,177,526	-$2,193,691	-$2,210,261	-$2,227,245
Tax Benefits			$12,036,445	$3,746,801	$2,556,766	$1,838,885	$1,828,965	$1,306,473	$766,666	$758,855	$751,719	$743,744
Subtotal Cost		(19,780,357)	9,995,745	1,692,161	487,838	(244,688)	(269,620)	(855,281)	(1,410,859)	(1,434,836)	(1,458,542)	(1,483,501)
Real Discount Rate		11%										
NPV of EBIT		(15,895,420)										
Effective tax rate		38.91%										
NPV of output		66,271										
Real Level Cost		240										
Level Cost Grossed for Taxes		393	Adjusted for end of year payment level									
Cost in year 1	**$**	**392.62**	**This should match cell C25**									
Difference from B&V		**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	8.33%	485,039	1,940,157	1,940,157	-	1,940,157	8,933.3	1,949,091	974,545
2	8.33%	485,039	1,940,157	3,880,315	1,949,091	1,940,157	26,882.3	3,916,130	2,932,610
3	8.33%	485,039	1,940,157	5,820,472	3,916,130	1,940,157	44,996.5	5,901,284	4,908,707
4	8.33%	485,039	1,940,157	7,760,629	5,901,284	1,940,157	63,277.5	7,904,719	6,903,002
5	8.33%	485,039	1,940,157	9,700,787	7,904,719	1,940,157	81,726.9	9,926,603	8,915,661
6	8.33%	485,039	1,940,157	11,640,944	9,926,603	1,940,157	100,346.2	11,967,107	10,946,855
7	8.33%	485,039	1,940,157	13,581,101	11,967,107	1,940,157	119,136.9	14,026,401	12,996,754
8	8.33%	485,039	1,940,157	15,521,259	14,026,401	1,940,157	138,100.7	16,104,659	15,065,530
9	8.33%	485,039	1,940,157	17,461,416	16,104,659	1,940,157	157,239.1	18,202,055	17,153,357
10	8.33%	485,039	1,940,157	19,401,573	18,202,055	1,940,157	176,553.8	20,318,766	19,260,411
	100.0%	5,820,472	23,281,888				1,328,958		
Deferred interest as % of Total Capital Cost							4.566%		

Loan Amount excluding Capitalized Interest	23,281,888
Equity funding during construction	5,820,472
Capitalized Interest	1,328,958
Total capital cost including interest during construction	30,431,318

Cost of Generation

All inputs are in blue.

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	30,431,318
Fed1 depreciation basis	$	25,866,620
State depreciation basis	$	30,431,318
	0	
	0	-14248597.49
	5	-14067144.42
slope		36290.61486

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0
Cost of Generation ($/mWh)	$392.62	$392.62	$392.62	$392.62	$392.62	$392.62	$392.62	$392.62	$392.62	$392.62
Operating Revenues	**$3,267,424**	**$3,267,424**	**$3,267,424**	**$3,267,424**	**$3,267,424**	**$3,267,424**	**$3,267,424**	**$3,267,424**	**$3,267,424**	**$3,267,424**
Fixed O&M	$480,032	$492,032	$504,333	$516,942	$529,865	$543,112	$556,690	$570,607	$584,872	$599,494
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$233,728	$239,571	$245,560	$251,699	$257,992	$264,442	$271,053	$277,829	$284,775	$291,894
Land Cost	$467,390	$467,390	$467,390	$467,390	$467,390	$728,179	$728,179	$728,179	$728,179	$728,179
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$16,337	$16,337	$16,337	$16,337	$16,337	$16,337	$16,337	$16,337	$16,337	$16,337
Operating Expenses	**$1,197,487**	**$1,215,331**	**$1,233,621**	**$1,252,368**	**$1,271,584**	**$1,552,069**	**$1,572,258**	**$1,592,952**	**$1,614,163**	**$1,635,904**
Interest Payment	$673,917	$629,560	$581,210	$528,509	$471,065	$408,451	$340,202	$265,811	$184,724	$96,339
Principal Payment	$492,858	$537,216	$585,565	$638,266	$695,710	$758,324	$826,573	$900,965	$982,051	$1,070,436
Debt Service	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**
Tax Depreciation - State	$157,817	$157,649	$157,817	$157,649	$157,817	$112,763	$67,892	$67,877	$67,892	$67,877
Taxable Income - State	$1,238,203	$1,264,884	$1,294,776	$1,328,897	$1,368,957	$1,194,140	$1,287,071	$1,340,785	$1,400,645	$1,467,304
State Income Tax (benefit)	$74,478	$76,083	$77,881	$79,933	$82,222	$71,828	$77,417	$80,648	$84,249	$88,258
Tax Depreciation - Fed1	$134,144	$134,002	$134,144	$134,002	$134,144	$95,849	$57,708	$57,695	$57,708	$57,695
Taxable Income - Fed1	$1,187,398	$1,212,449	$1,240,568	$1,272,611	$1,308,408	$1,139,227	$1,219,838	$1,270,318	$1,326,580	$1,389,227
Federal Income Tax (benefit)	$415,589	$424,357	$434,199	$445,414	$457,943	$398,729	$426,943	$444,611	$464,303	$486,229
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($490,067)**	**($500,440)**	**($512,080)**	**($525,347)**	**($540,165)**	**($470,557)**	**($504,361)**	**($525,259)**	**($548,552)**	**($574,488)**
Net Cash Flow	***413,095***	***384,878***	***354,948***	***322,933***	***288,899***	***78,022***	***24,030***	***(17,562)***	***(62,066)***	***(109,743)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	-$2,364,262	-$2,382,106	-$2,400,396	-$2,419,144	-$2,438,360	-$2,718,845	-$2,739,033	-$2,759,727	-$2,780,938	-$2,802,679
Tax Benefits	$781,279	$770,907	$759,267	$745,999	$731,181	$800,790	$766,986	$746,087	$722,795	$696,859
Subtotal Cost	(1,582,983)	(1,611,200)	(1,641,129)	(1,673,144)	(1,707,178)	(1,918,055)	(1,972,048)	(2,013,640)	(2,058,143)	(2,105,820)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	1
Capital Cost before construction financing ($/kW)	$8,365
Capital Cost incl construction financing ($/kW)	$8,553
Fixed O&M ($/kW)	$50
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$50,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	22%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	6
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	35.0%	$ 500,000
No. of Systems (WTGs)	5	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$293.82

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		1,927.2	1,912.7	1,898.4	1,884.2	1,870.0	1,856.0	1,842.1	1,828.3	1,814.6	1,800.9
Cost of Generation ($/mWh)		$293.82	$293.82	$293.82	$293.82	$293.82	$293.82	$293.82	$293.82	$293.82	$293.82
Operating Revenues		**$566,257**	**$562,010**	**$557,795**	**$553,611**	**$549,459**	**$545,338**	**$541,248**	**$537,189**	**$533,160**	**$529,161**
Fixed O&M		$50,000	$51,250	$52,531	$53,845	$55,191	$56,570	$57,985	$59,434	$60,920	$62,443
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$51,318	$52,601	$53,916	$55,264	$56,645	$58,061	$59,513	$61,001	$62,526	$64,089
Land Cost		$50,000	$50,000	$50,000	$50,000	$50,000	$57,964	$57,964	$57,964	$57,964	$57,964
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$2,831	$2,810	$2,789	$2,768	$2,747	$2,727	$2,706	$2,686	$2,666	$2,646
Operating Expenses		**$154,149**	**$156,661**	**$159,236**	**$161,876**	**$164,583**	**$175,322**	**$178,167**	**$181,085**	**$184,075**	**$187,141**
Interest Payment		$269,418	$264,152	$258,412	$252,155	$245,335	$237,901	$229,799	$220,967	$211,340	$200,847
Principal Payment	$2,993,533	$58,513	$63,779	$69,519	$75,776	$82,596	$90,030	$98,132	$106,964	$116,591	$127,084
Debt Service		**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**
Tax Depreciation - State	$8,552,950	$1,576,950	$2,534,748	$1,543,068	$946,115	$940,837	$492,629	$46,135	$44,569	$44,356	$44,309
Taxable Income - State		$1,065,740	($2,393,551)	($1,402,920)	($806,534)	($801,296)	($360,514)	$87,148	$90,568	$93,389	$96,864
State Income Tax (benefit)		$64,104	($143,972)	($84,386)	($48,513)	($48,198)	($21,685)	$5,242	$5,448	$5,617	$5,826
Tax Depreciation - Fed'l	$7,270,008	$1,340,408	$2,154,536	$1,311,608	$804,197	$799,712	$418,734	$39,214	$37,884	$37,702	$37,662
Taxable Income - Fed'l		$1,238,178	($1,869,366)	($1,087,075)	($616,104)	($611,973)	($264,935)	$88,826	$91,806	$94,425	$97,684
Federal Income Tax (benefit)		$433,362	($654,278)	($380,476)	($215,636)	($214,190)	($92,727)	$31,089	$32,132	$33,049	$34,190
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$2,565,885									
State Tax Credit		$2,500,000									
Net Taxes (due)		**$4,568,418**	**$798,250**	**$464,862**	**$264,149**	**$262,388**	**$114,412**	**($36,331)**	**($37,580)**	**($38,666)**	**($40,016)**
Net Cash Flow	***(5,559,418)***	***4,652,595***	***875,669***	***535,490***	***327,954***	***319,334***	***156,497***	***(1,181)***	***(9,406)***	***(17,512)***	***(25,927)***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(5,559,418)	-$482,080	-$484,592	-$487,167	-$489,807	-$492,514	-$503,253	-$506,098	-$509,015	-$512,006	-$515,072
Tax Benefits		$4,788,748	$1,016,927	$681,898	$479,558	$476,182	$326,602	$174,267	$171,439	$168,785	$165,879
Subtotal Cost	(5,559,418)	4,306,668	532,335	194,732	(10,249)	(16,332)	(176,651)	(331,831)	(337,576)	(343,221)	(349,193)
Real Discount Rate	11%										
NPV of EBIT	(2,629,944)										
Effective tax rate	38.91%										
NPV of output	14,652										
Real Level Cost	179										
Level Cost Grossed for Taxes	294	Adjusted for end of year payment level									
Cost in year 1 $	293.82	This should match cell C25									
Diffference from B&V	0.00%	This should be zero									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan				
					Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	16.67%	278,848	1,115,392	1,115,392	-	1,115,392	5,135.8	1,120,528	560,264
2	16.67%	278,848	1,115,392	2,230,784	1,120,528	1,115,392	15,454.6	2,251,374	1,685,951
3	16.67%	278,848	1,115,392	3,346,176	2,251,374	1,115,392	25,868.4	3,392,635	2,822,004
4	16.67%	278,848	1,115,392	4,461,568	3,392,635	1,115,392	36,378.1	4,544,405	3,968,520
5	16.67%	278,848	1,115,392	5,576,960	4,544,405	1,115,392	46,984.6	5,706,781	5,125,593
6	16.67%	278,848	1,115,392	6,692,352	5,706,781	1,115,392	57,688.8	6,879,862	6,293,322
7	0.00%	-	-	-	-	-	-	-	-
8	0.00%	-	-	-	-	-	-	-	-
9	0.00%	-	-	-	-	-	-	-	-
10	0.00%	-	-	-	-	-	-	-	-
	100.0%	1,673,088	6,692,352				187,510		
Deferred Interest as % of Total Capital Cost							2.241%		

Loan Amount excluding Capitalized Interest	6,692,352
Equity funding during construction	1,673,088
Capitalized Interest	187,510
Total capital cost including interest during construction	8,552,950

Cost of Generation

All inputs are in blue

Technology Assumptions
Project Capacity (MW)
Capital Cost before construction f
Capital Cost incl construction fina
Fixed O&M ($/kW)
Fixed O&M Escalation
Variable O&M ($/MWh)
Variable O&M Escalation
Insurance (% CapEx/year)
Fuel Cost ($/MBtu)
Fuel Cost Escalation
Land ($/yr)
Heat Rate (Btu/kWh)
Production Degradation (%/year)
Capacity Factor

Calculation		
Cap Cost inc Const Financing	$	8,552,950
Fed1 depreciation basis	$	7,270,008
State depreciation basis	$	8,552,950
	0	
	0	-2357472.173
	5	-2317355.039
slope		8023.426776

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	1,787.4	1,774.0	1,760.7	1,747.5	1,734.4	1,721.4	1,708.5	1,695.7	1,683.0	1,670.3
Cost of Generation ($/mWh)	$293.82	$293.82	$293.82	$293.82	$293.82	$293.82	$293.82	$293.82	$293.82	$293.82
Operating Revenues	**$525,193**	**$521,254**	**$517,344**	**$513,464**	**$509,613**	**$505,791**	**$501,998**	**$498,233**	**$494,496**	**$490,787**
Fixed O&M	$64,004	$65,604	$67,244	$68,926	$70,649	$72,415	$74,225	$76,081	$77,983	$79,933
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$65,691	$67,333	$69,017	$70,742	$72,511	$74,323	$76,181	$78,086	$80,038	$82,039
Land Cost	$77,898	$77,898	$77,898	$77,898	$77,898	$121,363	$121,363	$121,363	$121,363	$121,363
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$2,626	$2,606	$2,587	$2,567	$2,548	$2,529	$2,510	$2,491	$2,472	$2,454
Operating Expenses	**$210,220**	**$213,442**	**$216,746**	**$220,133**	**$223,606**	**$270,630**	**$274,280**	**$278,021**	**$281,857**	**$285,789**
Interest Payment	$189,409	$176,942	$163,353	$148,541	$132,396	$114,798	$95,616	$74,708	$51,918	$27,077
Principal Payment	$138,522	$150,989	$164,577	$179,389	$195,535	$213,133	$232,315	$253,223	$276,013	$300,854
Debt Service	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**
Tax Depreciation - State	$44,356	$44,309	$44,356	$44,309	$44,356	$31,693	$19,082	$19,077	$19,082	$19,077
Taxable Income - State	$81,208	$86,560	$92,889	$100,481	$109,255	$88,670	$113,020	$126,426	$141,640	$158,844
State Income Tax (benefit)	$4,885	$5,207	$5,587	$6,044	$6,572	$5,333	$6,798	$7,605	$8,520	$9,554
Tax Depreciation - Fed1	$37,702	$37,662	$37,702	$37,662	$37,702	$26,939	$16,219	$16,216	$16,219	$16,216
Taxable Income - Fed1	$82,977	$88,000	$93,955	$101,083	$109,337	$88,090	$109,084	$121,683	$135,982	$152,152
Federal Income Tax (benefit)	$29,042	$30,800	$32,884	$35,379	$38,268	$30,831	$38,179	$42,589	$47,594	$53,253
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($33,927)**	**($36,007)**	**($38,472)**	**($41,423)**	**($44,840)**	**($36,165)**	**($44,978)**	**($50,194)**	**($56,113)**	**($62,808)**
Net Cash Flow	***(46,884)***	***(56,126)***	***(65,804)***	***(76,023)***	***(86,763)***	***(128,935)***	***(145,191)***	***(157,913)***	***(171,405)***	***(185,740)***
IRR										

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue.

	100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
	100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0 000%	0.000%	0.000%
	100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
	100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%
Exp and Debt Cost		-$538,150	-$541,373	-$544,677	-$548,064	-$551,537	-$598,561	-$602,211	-$605,952	-$609,788	-$613,720
Tax Benefits		$170,425	$166,812	$162,826	$158,365	$153,450	$160,637	$150,349	$143,667	$136,294	$128,157
Subtotal Cost		(367,726)	(374,561)	(381,851)	(389,700)	(398,087)	(437,924)	(451,862)	(462,285)	(473,494)	(485,563)
Real Discount Rate											
NPV of EBIT											
Effective tax rate											
NPV of output	-										
Real Level Cost											
Level Cost Grossed for Taxes											
Cost in year 1											
Diffference from B&V											

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	1
Capital Cost before construction financing ($/kW)	$8,562
Capital Cost incl construction financing ($/kW)	$8,754
Fixed O&M ($/kW)	$80
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$20,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	*21%*

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	6
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	*6.015%*
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	35.0%	$ 500,000
No. of Systems (WTGs)	5	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$301.26

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6
Cost of Generation ($/mWh)		$301.26	$301.26	$301.26	$301.26	$301.26	$301.26	$301.26	$301.26	$301.26	$301.26
Operating Revenues		**$554,196**	**$554,196**	**$554,196**	**$554,196**	**$554,196**	**$554,196**	**$554,196**	**$554,196**	**$554,196**	**$554,196**
Fixed O&M		$80,000	$82,000	$84,050	$86,151	$88,305	$90,513	$92,775	$95,095	$97,472	$99,909
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$52,524	$53,837	$55,183	$56,563	$57,977	$59,426	$60,912	$62,435	$63,996	$65,596
Land Cost		$20,000	$20,000	$20,000	$20,000	$20,000	$23,185	$23,185	$23,185	$23,185	$23,185
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$2,771	$2,771	$2,771	$2,771	$2,771	$2,771	$2,771	$2,771	$2,771	$2,771
Operating Expenses		**$155,295**	**$158,608**	**$162,004**	**$165,485**	**$169,053**	**$175,896**	**$179,644**	**$183,486**	**$187,424**	**$191,461**
Interest Payment		$275,752	$270,362	$264,487	$258,083	$251,103	$243,495	$235,202	$226,162	$216,309	$205,569
Principal Payment	$3,063,916	$59,889	$65,279	$71,154	$77,558	$84,538	$92,146	$100,439	$109,479	$119,332	$130,072
Debt Service		**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**
Tax Depreciation - State	$8,754,045	$1,614,027	$2,594,344	$1,579,348	$968,359	$962,958	$504,211	$47,219	$45,617	$45,398	$45,350
Taxable Income - State		$1,009,121	($2,469,119)	($1,451,643)	($837,732)	($828,918)	($369,405)	$92,131	$98,930	$105,064	$111,815
State Income Tax (benefit)		$60,699	($148,518)	($87,316)	($50,390)	($49,859)	($22,220)	$5,542	$5,951	$6,320	$6,726
Tax Depreciation - Fedl	$7,440,938	$1,371,923	$2,205,193	$1,342,446	$823,105	$818,514	$428,579	$40,136	$38,775	$38,589	$38,548
Taxable Income - Fedl		$1,190,527	($1,931,450)	($1,127,425)	($642,088)	($634,615)	($271,554)	$93,672	$99,822	$105,554	$111,892
Federal Income Tax (benefit)		$416,684	($676,007)	($394,599)	($224,731)	($222,115)	($95,044)	$32,785	$34,938	$36,944	$39,162
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$2,626,213									
State Tax Credit		$2,500,000									
Net Taxes (due)		**$4,648,830**	**$824,525**	**$481,915**	**$275,121**	**$271,975**	**$117,264**	**($38,327)**	**($40,888)**	**($43,264)**	**($45,888)**
Net Cash Flow	***(5,690,129)***	***4,712,090***	***884,471***	***538,466***	***328,190***	***321,477***	***159,923***	***584***	***(5,820)***	***(12,133)***	***(18,794)***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(5,690,129)	-$490,936	-$494,250	-$497,645	-$501,126	-$504,694	-$511,537	-$515,285	-$519,127	-$523,066	-$527,102
Tax Benefits		$4,864,467	$1,040,161	$697,551	$490,757	$487,611	$332,900	$177,309	$174,748	$172,373	$169,748
Subtotal Cost	(5,690,129)	4,373,530	545,912	199,906	(10,369)	(17,083)	(178,637)	(337,976)	(344,380)	(350,693)	(357,354)

Real Discount Rate	11%		
NPV of EBIT	(2,696,062)		
Effective tax rate	38.91%		
NPV of output	14,649		
Real Level Cost	184		
Level Cost Grossed for Taxes	301	Adjusted for end of year payment level	
Cost in year 1	**$ 301.26**	**This should match cell C25**	
Diffference from B&V	**0.00%**	**This should be zero**	

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest 7.10%	End Balance	Avg. Balance
1	16.67%	285,404	1,141,617	1,141,617	0	1,141,617	5,256.5	1,146,873	573,437
2	16.67%	285,404	1,141,617	2,283,234	1,146,873	1,141,617	15,817.9	2,304,308	1,725,591
3	16.67%	285,404	1,141,617	3,424,850	2,304,308	1,141,617	28,476.6	3,472,401	2,888,355
4	16.67%	285,404	1,141,617	4,566,467	3,472,401	1,141,617	37,233.4	4,651,252	4,061,826
5	16.67%	285,404	1,141,617	5,708,084	4,651,252	1,141,617	48,089.3	5,840,958	5,246,105
6	16.67%	285,404	1,141,617	6,849,701	5,840,958	1,141,617	59,045.1	7,041,620	6,441,289
7	0.00%								
8	0.00%								
9	0.00%								
10	0.00%								
	100.0%	1,712,425	6,849,701				191,919		

Deferred interest as % of Total Capital Cost	2.241%
Loan Amount excluding Capitalized Interest	6,849,701
Equity funding during construction	1,712,425
Capitalized Interest	191,919
Total capital cost including interest during construction	8,754,045

Cost of Generation

All inputs are in blue.

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	8,754,045
Fed'l depreciation basis	$	7,440,938
State depreciation basis	$	8,754,045
	0	
	0	-2416740.543
	5	-2376629.863
slope		8022.135917

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6
Cost of Generation ($/mWh)	$301.26	$301.26	$301.26	$301.26	$301.26	$301.26	$301.26	$301.26	$301.26	$301.26
Operating Revenues	**$554,196**	**$554,196**	**$554,196**	**$554,196**	**$554,196**	**$554,196**	**$554,196**	**$554,196**	**$554,196**	**$554,196**
Fixed O&M	$102,407	$104,967	$107,591	$110,281	$113,038	$115,864	$118,760	$121,729	$124,773	$127,892
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$67,236	$68,916	$70,639	$72,405	$74,215	$76,071	$77,973	$79,922	$81,920	$83,968
Land Cost	$31,159	$31,159	$31,159	$31,159	$31,159	$48,545	$48,545	$48,545	$48,545	$48,545
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$2,771	$2,771	$2,771	$2,771	$2,771	$2,771	$2,771	$2,771	$2,771	$2,771
Operating Expenses	**$203,573**	**$207,814**	**$212,161**	**$216,616**	**$221,184**	**$243,251**	**$248,049**	**$252,968**	**$258,009**	**$263,176**
Interest Payment	$193,863	$181,103	$167,194	$152,034	$135,509	$117,497	$97,865	$76,465	$53,139	$27,713
Principal Payment	$141,778	$154,539	$168,447	$183,607	$200,132	$218,144	$237,777	$259,177	$282,502	$307,928
Debt Service	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**
Tax Depreciation - State	$45,398	$45,350	$45,398	$45,350	$45,398	$32,438	$19,530	$19,526	$19,530	$19,526
Taxable Income - State	$111,362	$119,929	$129,443	$140,195	$152,105	$161,010	$188,752	$205,238	$223,518	$243,780
State Income Tax (benefit)	$6,698	$7,214	$7,786	$8,433	$9,149	$9,685	$11,353	$12,345	$13,445	$14,663
Tax Depreciation - Fed'l	$38,589	$38,548	$38,589	$38,548	$38,589	$27,572	$16,601	$16,597	$16,601	$16,597
Taxable Income - Fed'l	$111,474	$119,518	$128,466	$138,565	$149,765	$156,191	$180,328	$195,822	$213,003	$232,046
Federal Income Tax (benefit)	$39,016	$41,831	$44,963	$48,498	$52,418	$54,667	$63,115	$68,538	$74,551	$81,216
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($45,714)**	**($49,045)**	**($52,749)**	**($56,931)**	**($61,567)**	**($64,351)**	**($74,468)**	**($80,883)**	**($87,996)**	**($95,879)**
Net Cash Flow	***(30,732)***	***(38,304)***	***(46,355)***	***(54,992)***	***(64,196)***	***(89,047)***	***(103,963)***	***(115,295)***	***(127,450)***	***(140,501)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0 000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	-$539,214	-$543,455	-$547,802	-$552,258	-$556,825	-$578,892	-$583,690	-$588,609	-$593,650	-$598,817
Tax Benefits	$169,922	$166,591	$162,887	$158,706	$154,069	$151,285	$141,168	$134,754	$127,641	$119,757
Subtotal Cost	(369,292)	(376,864)	(384,915)	(393,552)	(402,755)	(427,607)	(442,522)	(453,855)	(466,009)	(479,061)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

[redacted]

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	1
Capital Cost before construction financing ($/kW)	$7,777
Capital Cost incl construction financing ($/kW)	$7,951
Fixed O&M ($/kW)	$75
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$80,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	21%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	6
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	35.0%	$ 500,000
No. of Systems (WTGs)	1	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$431.90

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2
Cost of Generation ($/mWh)		$431.90	$431.90	$431.90	$431.90	$431.90	$431.90	$431.90	$431.90	$431.90	$431.90
Operating Revenues		**$786,581**	**$786,581**	**$786,581**	**$786,581**	**$786,581**	**$786,581**	**$786,581**	**$786,581**	**$786,581**	**$786,581**
Fixed O&M		$75,000	$76,875	$78,797	$80,767	$82,786	$84,856	$86,977	$89,151	$91,380	$93,665
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$47,705	$48,898	$50,120	$51,373	$52,658	$53,974	$55,323	$56,707	$58,124	$59,577
Land Cost		$80,000	$80,000	$80,000	$80,000	$80,000	$92,742	$92,742	$92,742	$92,742	$92,742
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933
Operating Expenses		**$206,638**	**$209,706**	**$212,850**	**$216,073**	**$219,377**	**$235,505**	**$238,975**	**$242,533**	**$246,179**	**$249,917**
Interest Payment		$250,452	$245,557	$240,221	$234,405	$228,065	$221,154	$213,622	$205,412	$196,463	$186,708
Principal Payment	$2,782,805	$54,394	$59,289	$64,626	$70,442	$76,782	$83,692	$91,224	$99,434	$108,383	$118,138
Debt Service		**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**
Tax Depreciation - State	$7,950,870	$1,465,942	$2,356,316	$1,434,444	$879,513	$874,608	$457,950	$42,887	$41,432	$41,233	$41,189
Taxable Income - State		($636,451)	($2,024,998)	($1,100,935)	($543,410)	($535,468)	($128,028)	$291,096	$297,204	$302,705	$308,766
State Income Tax (benefit)		($38,283)	($121,804)	($66,221)	($32,686)	($32,208)	($7,701)	$17,509	$17,877	$18,208	$18,572
Tax Depreciation - Fed'l	$6,758,240	$1,246,050	$2,002,869	$1,219,278	$747,586	$743,417	$389,258	$36,454	$35,217	$35,048	$35,011
Taxable Income - Fed'l		($378,278)	($1,549,747)	($819,547)	($378,797)	($372,069)	($51,635)	$280,020	$285,542	$290,683	$296,372
Federal Income Tax (benefit)		($132,397)	($542,411)	($286,841)	($132,579)	($130,224)	($18,072)	$98,007	$99,940	$101,739	$103,730
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$2,385,261									
State Tax Credit		$500,000									
Net Taxes (due)		**$3,055,941**	**$664,215**	**$353,063**	**$165,265**	**$162,432**	**$25,773**	**($115,516)**	**($117,817)**	**($119,947)**	**($122,303)**
Net Cash Flow	***(5,168,066)***	***3,331,037***	***936,244***	***621,947***	***430,926***	***424,790***	***272,003***	***127,243***	***121,385***	***115,608***	***109,515***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(5,168,066)	-$511,485	-$514,552	-$517,697	-$520,919	-$524,223	-$540,351	-$543,822	-$547,379	-$551,026	-$554,763
Tax Benefits		$3,361,998	$970,272	$659,119	$471,322	$468,489	$331,830	$190,540	$188,240	$186,110	$183,754
Subtotal Cost	(5,168,066)	2,850,513	455,719	141,423	(49,598)	(55,734)	(208,521)	(353,282)	(359,139)	(364,916)	(371,009)
Real Discount Rate	11%										
NPV of EBIT	(3,826,572)										
Effective tax rate	38.91%										
NPV of output	14,503										
Real Level Cost	264										
Level Cost Grossed for Taxes	432	Adjusted for end of year payment level									
Cost in year 1	**$ 431.90**	**This should match cell C25**									
Diffference from B&V	**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	16.67%	259,219	1,036,875	1,036,875	-	1,036,875	4,774.2	1,041,649	520,824
2	16.67%	259,219	1,036,875	2,073,749	1,041,649	1,036,875	14,366.6	2,092,890	1,567,270
3	16.67%	259,219	1,036,875	3,110,624	2,092,890	1,036,875	24,047.4	3,153,812	2,623,351
4	16.67%	259,219	1,036,875	4,147,499	3,153,812	1,036,875	33,817.3	4,224,504	3,689,158
5	16.67%	259,219	1,036,875	5,184,373	4,224,504	1,036,875	43,677.2	5,305,056	4,764,780
6	16.67%	259,219	1,036,875	6,221,248	5,305,056	1,036,875	53,627.8	6,395,558	5,850,307
7	0.00%								
8	0.00%								
9	0.00%								
10	0.00%								
	100.0%	1,555,312	6,221,248				174,310		
Deferred interest as % of Total Capital Cost							2.241%		
Loan Amount excluding Capitalized Interest			6,221,248						
Equity funding during construction			1,555,312						
Capitalized interest			174,310						
Total capital cost including interest during construction			7,950,870						

Cost of Generation

All inputs are in blue

Technology Assumptions
Project Capacity (MW)
Capital Cost before construction f
Capital Cost incl construction fina
Fixed O&M ($/kW)
Fixed O&M Escalation
Variable O&M ($/MWh)
Variable O&M Escalation
Insurance (% CapEx/year)
Fuel Cost ($/MBtu)
Fuel Cost Escalation
Land ($/yr)
Heat Rate (Btu/kWh)
Production Degradation (%/year)
Capacity Factor

Calculation		
Cap Cost inc Const Financing	$	7,950,870
Fed'l depreciation basis	$	6,758,240
State depreciation basis	$	7,950,870
	0	
	0	-3430125.079
	5	-3390415.507
slope		7941.914558

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2
Cost of Generation ($/mWh)	$431.90	$431.90	$431.90	$431.90	$431.90	$431.90	$431.90	$431.90	$431.90	$431.90
Operating Revenues	**$786,581**	**$786,581**	**$786,581**	**$786,581**	**$786,581**	**$786,581**	**$786,581**	**$786,581**	**$786,581**	**$786,581**
Fixed O&M	$96,006	$98,406	$100,867	$103,388	$105,973	$108,622	$111,338	$114,121	$116,974	$119,899
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$61,067	$62,593	$64,158	$65,762	$67,406	$69,091	$70,819	$72,589	$74,404	$76,264
Land Cost	$124,637	$124,637	$124,637	$124,637	$124,637	$194,181	$194,181	$194,181	$194,181	$194,181
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933
Operating Expenses	**$285,643**	**$289,570**	**$293,595**	**$297,721**	**$301,950**	**$375,828**	**$380,270**	**$384,824**	**$389,492**	**$394,277**
Interest Payment	$176,076	$164,487	$151,854	$138,085	$123,076	$106,717	$88,886	$69,449	$48,263	$25,171
Principal Payment	$128,770	$140,360	$152,992	$166,761	$181,770	$198,129	$215,961	$235,397	$256,583	$279,676
Debt Service	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**
Tax Depreciation - State	$41,233	$41,189	$41,233	$41,189	$41,233	$29,462	$17,738	$17,734	$17,738	$17,734
Taxable Income - State	$283,628	$291,334	$299,898	$309,586	$320,322	$274,574	$299,686	$314,573	$331,087	$349,399
State Income Tax (benefit)	$17,060	$17,524	$18,039	$18,622	$19,267	$16,516	$18,026	$18,922	$19,915	$21,016
Tax Depreciation - Fed'l	$35,048	$35,011	$35,048	$35,011	$35,048	$25,043	$15,078	$15,074	$15,078	$15,074
Taxable Income - Fed'l	$272,753	$279,989	$288,044	$297,142	$307,239	$262,478	$284,321	$298,312	$313,833	$331,043
Federal Income Tax (benefit)	$95,464	$97,996	$100,815	$104,000	$107,534	$91,867	$99,512	$104,409	$109,841	$115,865
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($112,524)**	**($115,520)**	**($118,854)**	**($122,621)**	**($126,801)**	**($108,383)**	**($117,538)**	**($123,331)**	**($129,756)**	**($136,881)**
Net Cash Flow	***83,567***	***76,644***	***69,285***	***61,392***	***52,984***	***(2,476)***	***(16,075)***	***(26,421)***	***(37,514)***	***(49,424)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	-$590,490	-$594,417	-$598,442	-$602,567	-$606,796	-$680,674	-$685,117	-$689,671	-$694,339	-$699,123
Tax Benefits	$193,533	$190,537	$187,202	$183,435	$179,256	$197,674	$188,518	$182,726	$176,300	$169,175
Subtotal Cost	(396,957)	(403,880)	(411,239)	(419,132)	(427,540)	(483,000)	(496,599)	(506,945)	(518,038)	(529,948)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Difference from B&V										

Attachment 3

Frequently Asked Questions: The CPV Consortium and CPV Technology

What is the CPV Consortium?

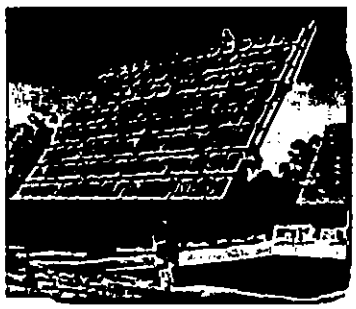
The CPV Consortium is a global industry organization that supports the development and long-term success of the Concentrator Photovoltaics industry with the goal of providing a low-cost, reliable source of renewable energy. Its members include designers and manufacturers of CPV panels, CPV cell suppliers, and tracker suppliers. The membership also includes a large base of companies working on the deployment, test, materials, and other parts of the industry infrastructure.

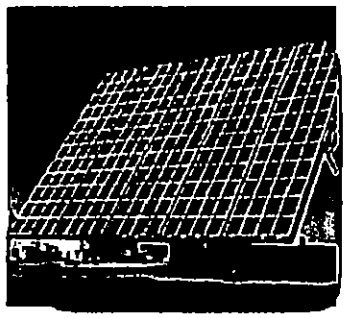
Can I be a member of the Consortium if my company does not directly supply CPV systems?

Yes, the vision of the CPV Consortium is to have a global organization covering all facets of CPV, from the components through the deployment. Current members are cell suppliers, tracker suppliers, panel suppliers, support companies, system integrators and installers, research labs, power generators and universities.

What is "CPV" and how is it different from other solar technology?

CPV stands for concentrator photovoltaics. A concentrating photovoltaic (CPV) system converts light energy into electrical energy in the same way that conventional photovoltaic technology does. The difference in the technologies lies in the addition of an optical system that focuses a large area of sunlight onto each cell. Solar concentrators of all varieties may be used with the base technology either being refractive or reflective. The other primary difference is in the cells. Traditional PV systems utilize large amounts of silicon solar cells. In contrast, CPV systems utilize a small amount of high-efficiency solar cell material. These cells used in high concentration CPV systems are referred to as multi-junction or III-V cells. The CPV panels are mounted on to keep the focal point on the cell as the sun moves across the sky. CPV is sometimes confused with CSP – Concentrating Solar Power. Whereas PV converts light energy directly to electricity, CSP systems utilize heat from the system to generate power in a traditional steam engine power plant environment.

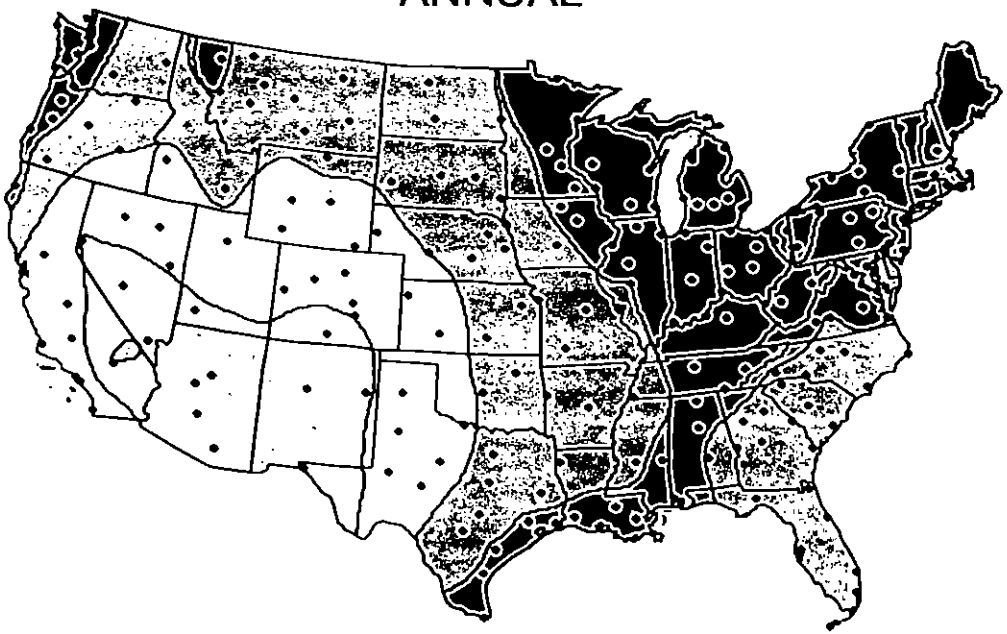




Attachment 4

Average Daily Solar Radiation Per Month

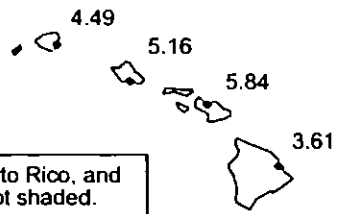
ANNUAL



Two-Axis Tracking Concentrator

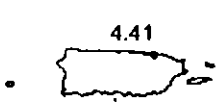
Alaska

Hawaii



Hawaii, Puerto Rico, and Guam are not shaded.

San Juan, PR



Guam, PI

Collector Orientation

Two-axis tracking concentrator system such as a parabolic dish uses direct beam radiation. Direct beam radiation comes in a direct line from the sun and is measured with instruments having a field of view of 5.7 degrees. These instruments see only the sun's disk *and a small portion of the sky* surrounding the sun. Tracking the sun in both azimuth and elevation, the dish or field of heliostats (mirrors) reflects solar energy onto a small spot.

This map shows the general trends in the amount of solar radiation received in the United States and its territories. It is a spatial interpolation of solar radiation values derived from the 1961-1990 National Solar Radiation Data Base (NSRDB). The dots on the map represent the 239 sites of the NSRDB.

Maps of average values are produced by averaging all 30 years of data for each site. Maps of maximum and minimum values are composites of specific months and years for which each site achieved its maximum or minimum amounts of solar radiation.

Though useful for identifying general trends, this map should be used with caution for site-specific resource evaluations because variations in solar radiation not reflected in the maps can exist, introducing uncertainty into resource estimates.

Maps are not drawn to scale.

* **NREL**

National Renewable Energy Laboratory
Resource Assessment Program

kWh/m²/day

- 10 to 14
- 8 to 10
- 7 to 8
- 6 to 7
- 5 to 6
- 4 to 5
- 3 to 4
- 2 to 3
- 0 to 2
- none

C2XXA13-130

Attachment 5

PMRG | PM Realty Group

NOTICE OF OFFERING
GALBRAITH TRUST LANDS

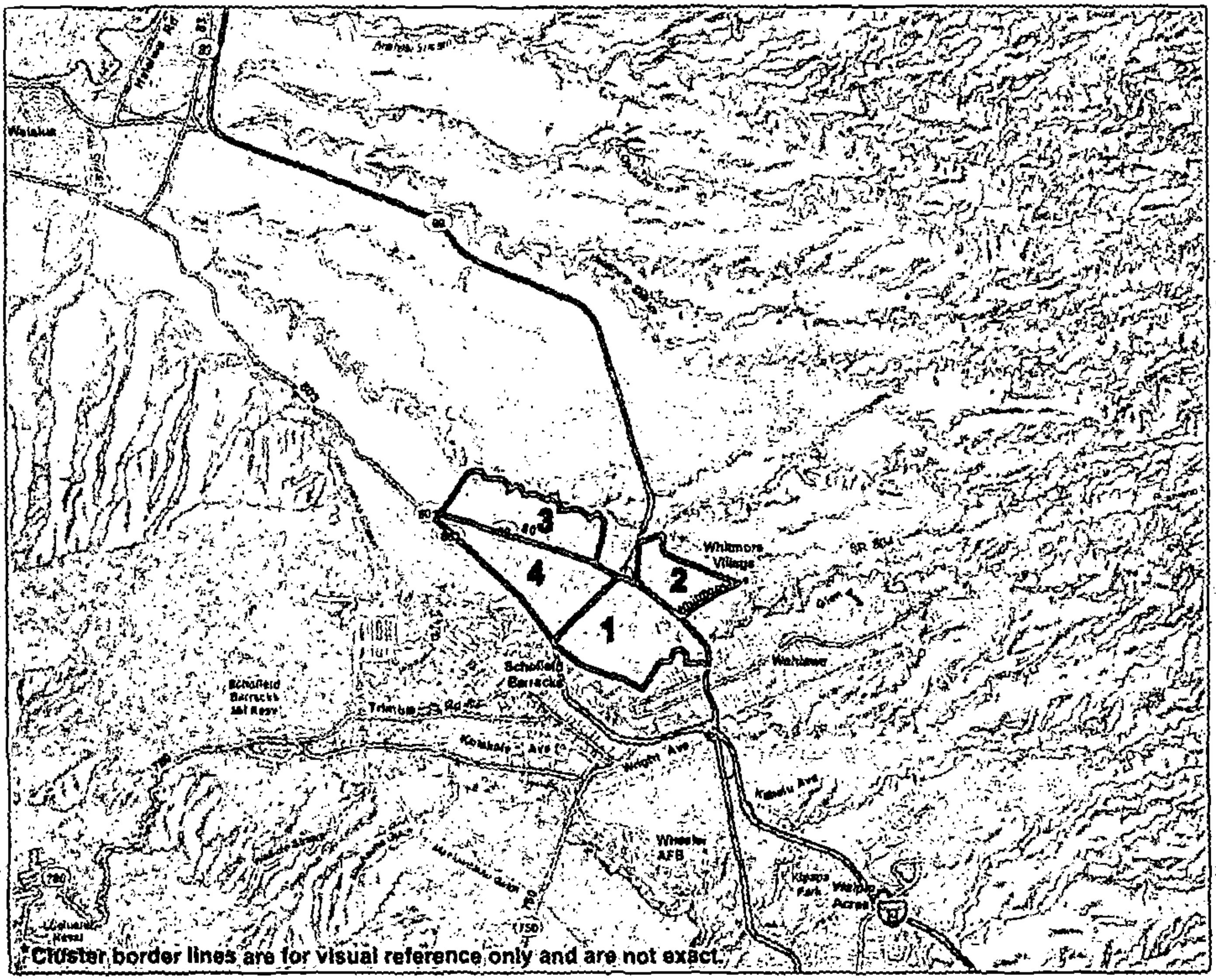
PM Realty Group is pleased to present the opportunity to acquire approximately 1,723 acres of fee simple agricultural zoned vacant land. This is some of the best located and most accessible agricultural land of significant size available on Oahu. The property is known as the Galbraith Trust Lands.

Investment Highlights

- Some of the most accessible AG-1 zoned land available for sale on Oahu.
- Situated near Oahu's famous North Shore. Bordered by the Ko'olau and Waianae mountain ranges, the town of Wahiawa, Schofield Barracks, and Whitmore Village.
- Topography consists of level to gently sloping grade for maximum usability.
- Elevation from approximately 800 to 1,000 feet above sea level.
- Rainfall of 30 to 80 inches per year.

Location Description

- The Galbraith Trust Lands are situated in the central Oahu plain between the Ko'olau and Waianae mountain ranges adjacent to Wahiawa and Lake Wilson, Hawaii's second largest reservoir, and between Schofield Barracks and Whitmore Village.
- Major bordering arterials include Kamehameha Highway, Kaukonahua Road, Wilikina Drive and Whitmore Avenue.
- Access to all parcels and clusters by way of road cuts and major arterials and within a mile of the H-2 freeway on-ramp in Wahiawa.



*Cluster border lines are for visual reference only and are not exact.

Pricing

Cluster 1:	516 acres	$9,126,000	or $17,688/ac
Cluster 2:	257 acres	$4,252,000	or $16,526/ac
Cluster 3:	456 acres	$6,626,000	or $14,531/ac
Cluster 4:	494 acres	$10,688,000	or $21,627/ac

(Note: Cluster 4 includes existing water well)

Entire holding of 1,723 acres also available
as a bulk purchase
Call for additional information

For More Information

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Exclusively Contracted to PM Realty Group
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mbittick@bishopsc.com

201 Merchant Street, Suite 2220 | Honolulu, HI 96813
Ph: 808-536-6500 | Fx: 808-792-7247
www.pmrghawaii.com

PMRG | PM Realty Group

Attachment 6

Select Agricultural Land Comparables

WAIANAE AGRICULTURAL LAND SALES COMPARABLES

TMK#	Street Number	Street	Total Interior Area	Land Area	Tenure	Zoning	Sale Date	Sale Instrument Type	Sale Price
1-8-5-4-87	85-1512	WAIANAE VALLEY RD	0	44,431	Fee Simple	AG-2	2/5/2008	Deed	$208,000
1-8-5-19-80	85-576	WAIANAE VALLEY RD	0	70,001	Fee Simple	AG-2	4/29/2008	Deed	$234,000
1-8-7-3-27		PAAKEA RD	2,520	136,038	Fee Simple	AG-2	3/25/2008	Deed	$460,000
1-8-7-21-7	87-1810	KUUALOHA RD	2,688	419,909	Fee Simple	AG-2	12/29/2008	Deed	$870,000
								AVERAGE PRICE PER SQ. FT:	$3.39
								PRICE RANGE PSF:	$2.07 TO $4.64

WAIALUA AGRICULTURAL LAND SALES COMPARABLES

TMK#	Street Number	Street	Total Interior Area	Land Area	Tenure	Zoning	Sale Date	Sale Instrument Type	Sale Price
1-6-8-13-2	68-329	MAHINAAI ST	1,064	87,111	Fee Simple	AG-2	3/12/2008	Deed	$1,250,000
1-6-1-9-4	61-560	POHAKU LOA WAY	0	88,340	Fee Simple	AG-1	7/25/2008	Deed	$850,000
1-6-1-5-22			0	114,084	Fee Simple	AG-1	4/20/2009	Deed	$475,000
1-6-8-3-48	68-399	FARRINGTON HWY	0	177,638	Fee Simple	AG-1	7/28/2009	Deed	$1,350,000
1-6-6-27-11			0	283,140	Fee Simple		8/7/2009	Deed	$950,000
1-6-6-28-13		FARRINGTON HWY	0	105,851	Fee Simple	AG-1	8/26/2009	Deed	$525,000
1-6-6-28-7		FARRINGTON HWY	0	266,021	Fee Simple	AG-1	9/30/2009	Deed	$1,000,000
1-6-5-2-24	65-777	KAUKONAHUA RD	0	415,562	Fee Simple	AG-1	10/9/2009	Deed	$631,000
1-6-8-3-3	68-401	FARRINGTON HWY	0	179,903	Fee Simple	AG-2	12/10/2009	Deed	$1,200,000
								AVERAGE PRICE PER SQ. FT:	$6.06
								PRICE RANGE PSF:	$1.52 TO $12.91

KUNIA AGRICULTURAL LAND SALES COMPARABLES

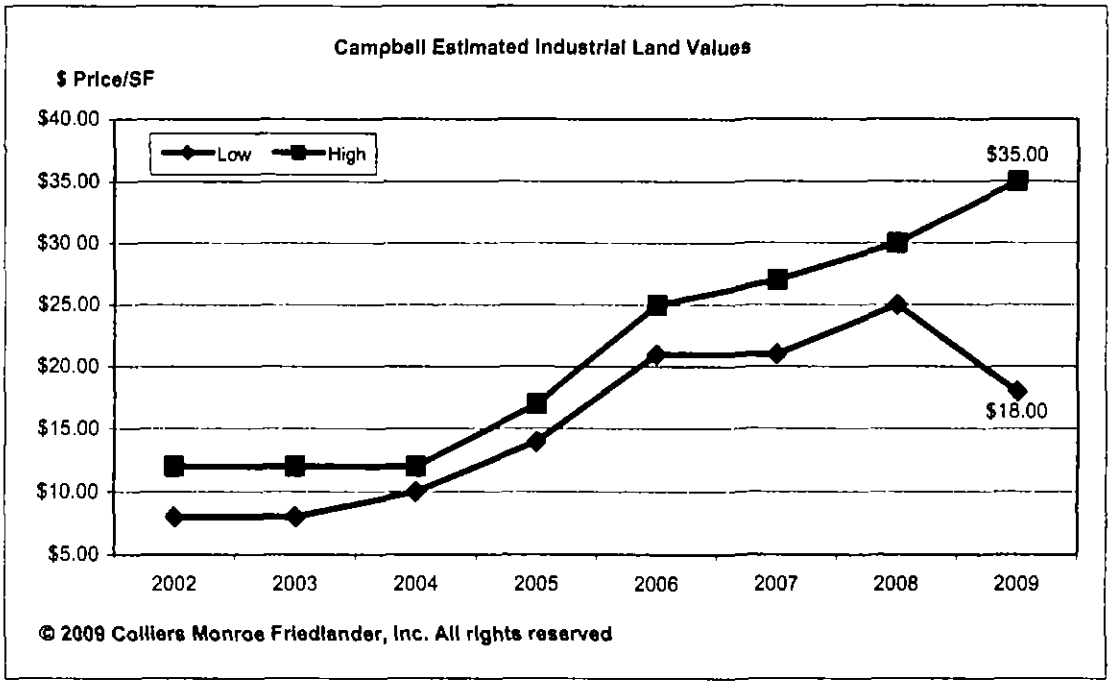
Taxkey	Street Number	Street	Total Interior Area	Land Area	Tenure	Zoning	Sale Date	Sale Instrument Type	Sale Price
1-9-2-3-4		HUNEKAI ST	0	73,486	Fee Simple	AG-2	9/30/2009	Deed	$11,172,863
1-9-2-3-29	92-1600	MAKAKILO DR	10,293	452,153	Fee Simple	AG-2			
1-9-2-3-85		FARRINGTON HWY	0	37,374	Fee Simple	AG-2			
1-9-2-3-90			0	179,162	Fee Simple				
1-9-2-3-91			0	34,682,472	Fee Simple				
1-9-2-3-93			0	6,391	Fee Simple				
				35,431,038					
1-9-2-3-82		MAKAKILO DR	4,536	7,625,962	Fee Simple	AG-2	10/9/2009	Deed	$10,000,000
1-9-2-3-88			0	37,970,424	Fee Simple		9/30/2009	Deed	$3,827,137
1-9-2-5-23			113,843	5,187,386	Fee Simple		11/17/2009	Deed	$2,500,000
								AVERAGE PRICE PER SQ. FT:	$0.33
								PRICE RANGE PSF:	$0.21 TO $0.74

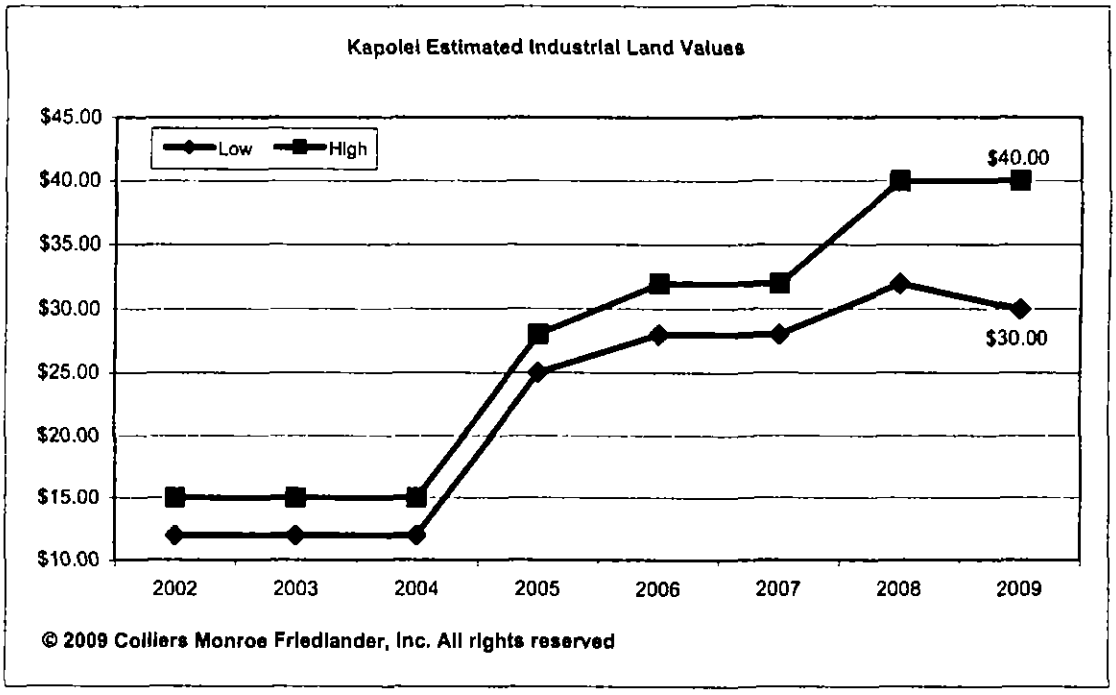
Source: Hawaii Information Service, Colliers Monroe Friedlander, Inc.

1/21/2010

Attachment 6

Selected West Oahu Industrial Estimated Historical Land Value Ranges





Attachment 6

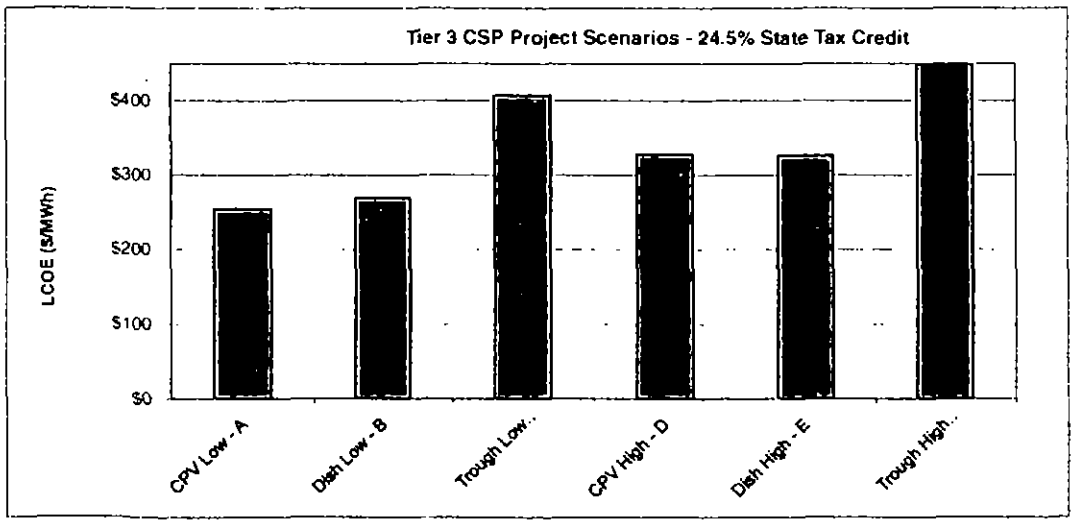
Tier 3 CSP

500kW-5MW

Inputs	CPV Low - A	Dish Low - B	Trough Low - C	CPV High - D	Dish High - E	Trough High - F
Size (kW)	5000	5000	5 000	1,000	1,000	1,000
Production (kWh/kW)	2015	2015	2015	1927	1840	1821
Curtailment (%/year)	0%	0%	0%	0%	0%	0%
Contract life	20	20	20	20	20	20
System life	20	20	20	20	20	20
Annual degradation (%/year)	0.75%	0%	0%	0.75%	0%	0%
Capacity Factor	23%	23%	15%	22%	21%	21%
Capital Costs						
Stirling Dish Capital Costs		$7,367			$7,852	
Solar Trough Capital Costs			$5,537			$7,007
CPV Capital Costs	$4,887			$7,055		
Interconnection	$255	$255	$255	$560	$560	$560
Hawaii Permitting	$30	$30	$30	$150	$150	$150
Total Installed Cost	$5,174	$7,652	$5,820	$8,765	$8,562	$7,777
O&M Costs						
Consolidated O&M ($/kWh)	$0	$0	$75	$50	$80	$75
Other Costs						
Insurance (% Capital/year)	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Property Tax ($/year)	$0	$0	$0	$0	$0	$0
Land ($/year)	$250,000	$100,000	$100,000	$50,000	$20,000	$10,000
Financing						
Debt percentage (%)	35%	35%	35%	35%	35%	35%
Debt rate (%)	9%	9%	9%	9%	9%	9%
Debt tenor (years)	20	20	20	20	20	20
Equity rate (%)	11%	11%	11%	11%	11%	11%
Construction Debt Percentage (%)	80%	80%	80%	80%	80%	80%
Construction Debt Rate (%)	11%	11%	11%	11%	11%	11%
Construction Debt Term (months)	12	12	12	6	6	6
Tax Incentives						
Depreciation Years	5	5	5	5	5	5
PTC ($/MWh) for 10 years	NA	NA	NA	NA	NA	NA
Federal ITC (%)	30%	30%	30%	30%	30%	30%
State ITC (%)	24.5%	24.5%	24.5%	24.5%	24.5%	24.5%
# of systems	2	35	1	5	5	1
Tax Rate (all in)	40%	40%	40%	40%	40%	40%
LCOE ($/MWh)	$256	$270	$408	$329	$327	$457

Midpoint of range (proposed tariff) $358

Key Inputs	A	B	C	D	E	F
Size (kW)	5,000	5,000	5,000	1,000	1,000	1,000
Capacity Factor (%)	23%	23%	15%	22%	21%	21%
Installed Cost ($/kW)	$5,174	$7,652	$5,820	$8,765	$8,562	$7,777
LCOE	$256	$270	$408	$329	$327	$457



Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	5
Capital Cost before construction financing ($/kW)	$6,174
Capital Cost incl construction financing ($/kW)	$6,456
Fixed O&M ($/kW)	$50
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$320,175
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	23%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	12
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	24.5%	$ 500,000
No. of Systems (WTGs)	35	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$255.22

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		10,074.0	9,988.4	9,923.5	9,849.0	9,775.2	9,701.8	9,629.1	9,556.9	9,485.2	9,414.1
Cost of Generation ($/mWh)		$255.22	$255.22	$255.22	$255.22	$255.22	$255.22	$255.22	$255.22	$255.22	$255.22
Operating Revenues		**$2,571,084**	**$2,551,801**	**$2,532,662**	**$2,513,667**	**$2,494,815**	**$2,476,104**	**$2,457,533**	**$2,439,101**	**$2,420,808**	**$2,402,652**
Fixed O&M		$250,000	$256,250	$262,656	$269,223	$275,953	$282,852	$289,923	$297,171	$304,601	$312,216
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$193,672	$198,514	$203,476	$208,563	$213,777	$219,122	$224,600	$230,215	$235,970	$241,870
Land Cost		$320,175	$320,175	$320,175	$320,175	$320,175	$371,171	$371,171	$371,171	$371,171	$371,171
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$12,855	$12,759	$12,663	$12,568	$12,474	$12,381	$12,288	$12,196	$12,104	$12,013
Operating Expenses		**$776,702**	**$787,698**	**$798,971**	**$810,529**	**$822,380**	**$885,525**	**$897,981**	**$910,752**	**$923,846**	**$937,269**
Interest Payment		$1,016,777	$996,902	$975,239	$951,627	$925,889	$897,834	$867,255	$833,924	$797,593	$757,992
Principal Payment	$11,297,521	$220,827	$240,701	$262,364	$285,977	$311,715	$339,769	$370,349	$403,680	$440,011	$479,612
Debt Service		**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**
Tax Depreciation - State	$32,278,631	$5,951,373	$9,566,079	$5,823,501	$3,570,614	$3,550,698	$1,859,168	$174,111	$168,204	$167,397	$167,219
Taxable Income - State		$2,734,497	($8,798,878)	($5,065,049)	($2,819,102)	($2,804,152)	($1,166,424)	$518,185	$526,221	$531,973	$540,172
State Income Tax (benefit)		$164,480	($529,253)	($304,663)	($169,569)	($168,670)	($70,160)	$31,169	$31,652	$31,998	$32,491
Tax Depreciation - Fed'l	$27,436,837	$5,058,667	$8,131,167	$4,949,976	$3,035,022	$3,018,093	$1,580,293	$147,994	$142,973	$142,287	$142,137
Taxable Income - Fed'l		$3,462,723	($6,834,714)	($3,886,861)	($2,113,941)	($2,102,877)	($817,389)	$513,133	$519,800	$525,084	$532,763
Federal Income Tax (benefit)		$1,211,953	($2,392,150)	($1,360,401)	($739,879)	($736,007)	($286,086)	$179,597	$181,930	$183,780	$186,467
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$9,683,589									
State Tax Credit		$7,908,265									
Net Taxes (due)		**$16,215,421**	**$2,921,402**	**$1,665,064**	**$909,449**	**$904,677**	**$356,246**	**($210,765)**	**($213,582)**	**($215,778)**	**($218,959)**
Net Cash Flow	***(20,981,110)***	***16,772,199***	***3,447,902***	***2,161,152***	***1,374,983***	***1,339,508***	***709,221***	***111,182***	***77,163***	***43,581***	***8,821***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue.

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(20,981,110)	-$2,014,306	-$2,025,301	-$2,036,575	-$2,048,133	-$2,059,983	-$2,123,129	-$2,135,585	-$2,148,356	-$2,161,449	-$2,174,873
Tax Benefits		$17,215,823	$3,914,302	$2,650,517	$1,887,510	$1,875,403	$1,319,692	$745,454	$735,466	$726,153	$715,907
Subtotal Cost	(20,981,110)	15,201,518	1,889,001	613,942	(160,623)	(184,580)	(803,436)	(1,390,131)	(1,412,890)	(1,435,297)	(1,458,965)
Real Discount Rate	11%										
NPV of EBIT	(11,941,235)										
Effective tax rate	38.91%										
NPV of output	76,588										
Real Level Cost	156										
Level Cost Grossed for Taxes	255	Adjusted for end of year payment level									
Cost in year 1	**$ 255.22**	**This should match cell C25**									
Difference from B&V	**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	8.33%	514,483	2,057,933	2,057,933	-	2,057,933	9,475.8	2,067,409	1,033,704
2	8.33%	514,483	2,057,933	4,115,867	2,067,409	2,057,933	28,514.1	4,153,856	3,110,633
3	8.33%	514,483	2,057,933	6,173,800	4,153,856	2,057,933	47,728.0	6,259,518	5,206,687
4	8.33%	514,483	2,057,933	8,231,733	6,259,518	2,057,933	67,118.7	8,384,570	7,322,044
5	8.33%	514,483	2,057,933	10,289,667	8,384,570	2,057,933	86,688.1	10,529,191	9,456,880
6	8.33%	514,483	2,057,933	12,347,600	10,529,191	2,057,933	106,437.6	12,693,562	11,611,377
7	8.33%	514,483	2,057,933	14,405,533	12,693,562	2,057,933	126,369.0	14,877,865	13,785,713
8	8.33%	514,483	2,057,933	16,463,467	14,877,865	2,057,933	146,484.0	17,082,282	15,980,073
9	8.33%	514,483	2,057,933	18,521,400	17,082,282	2,057,933	166,784.2	19,306,999	18,194,641
10	8.33%	514,483	2,057,933	20,579,333	19,306,999	2,057,933	187,271.3	21,552,204	20,429,602
	100.0%	6,173,800	24,695,200				1,409,631		
Deferred interest as % of Total Capital Cost							4.566%		

Loan Amount excluding Capitalized Interest	24,695,200
Equity funding during construction	6,173,800
Capitalized interest	1,409,631
Total capital cost including interest during construction	32,278,631

Cost of Generation

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	32,278,631
Fed'l depreciation basis	$	27,436,837
State depreciation basis	$	32,278,631
	0	
	0	-10704079.83
	5	-10494376.63
slope		41940.63997

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	9,343.4	9,273.4	9,203.8	9,134.8	9,066.3	8,998.3	8,930.8	8,863.8	8,797.3	8,731.4
Cost of Generation ($/mWh)	$255.22	$255.22	$255.22	$255.22	$255.22	$255.22	$255.22	$255.22	$255.22	$255.22
Operating Revenues	**$2,384,632**	**$2,366,747**	**$2,348,997**	**$2,331,379**	**$2,313,894**	**$2,296,540**	**$2,279,316**	**$2,262,221**	**$2,245,254**	**$2,228,415**
Fixed O&M	$320,021	$328,022	$336,222	$344,628	$353,243	$362,075	$371,126	$380,405	$389,915	$399,663
Vanable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$247,916	$254,114	$260,467	$266,979	$273,653	$280,494	$287,507	$294,695	$302,062	$309,613
Land Cost	$498,822	$498,822	$498,822	$498,822	$498,822	$777,149	$777,149	$777,149	$777,149	$777,149
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$11,923	$11,834	$11,745	$11,657	$11,569	$11,483	$11,397	$11,311	$11,226	$11,142
Operating Expenses	**$1,078,683**	**$1,092,792**	**$1,107,256**	**$1,122,086**	**$1,137,288**	**$1,431,200**	**$1,447,179**	**$1,463,559**	**$1,480,352**	**$1,497,567**
Interest Payment	$714,826	$667,777	$616,492	$560,592	$499,661	$433,246	$360,854	$281,947	$195,937	$102,187
Principal Payment	$522,777	$569,827	$621,112	$677,012	$737,943	$804,357	$876,750	$955,657	$1,041,666	$1,135,416
Debt Service	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**
Tax Depreciation - State	$167,397	$167,219	$167,397	$167,219	$167,397	$119,608	$72,014	$71,997	$72,014	$71,997
Taxable Income - State	$423,726	$438,960	$457,851	$481,482	$509,548	$312,485	$399,269	$444,718	$496,952	$556,663
State Income Tax (benefit)	$25,487	$26,403	$27,540	$28,961	$30,649	$18,796	$24,016	$26,750	$29,892	$33,483
Tax Depreciation - Fed'l	$142,287	$142,137	$142,287	$142,137	$142,287	$101,667	$61,212	$61,198	$61,212	$61,198
Taxable Income - Fed'l	$423,348	$437,639	$455,421	$477,604	$504,008	$311,630	$386,055	$428,768	$477,862	$533,979
Federal Income Tax (benefit)	$148,172	$153,174	$159,397	$167,161	$176,403	$109,070	$135,119	$150,069	$167,252	$186,893
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($173,659)**	**($179,577)**	**($186,937)**	**($196,123)**	**($207,052)**	**($127,866)**	**($159,135)**	**($176,818)**	**($197,143)**	**($220,376)**
Net Cash Flow	***(105,313)***	***(143,225)***	***(182,800)***	***(224,432)***	***(268,050)***	***(500,131)***	***(564,602)***	***(615,760)***	***(669,844)***	***(727,132)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0 000%	0.000%	0 000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0 000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	-$2,316,286	-$2,330,395	-$2,344,860	-$2,359,689	-$2,374,892	-$2,668,804	-$2,684,782	-$2,701,163	-$2,717,955	-$2,735,170
Tax Benefits	$754,195	$741,318	$727,052	$711,011	$693,278	$765,711	$727,741	$703,406	$676,479	$646,695
Subtotal Cost	(1,562,091)	(1,589,077)	(1,617,808)	(1,648,678)	(1,681,614)	(1,903,093)	(1,957,042)	(1,997,757)	(2,041,476)	(2,088,476)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	5
Capital Cost before construction financing ($/kW)	$7,352
Capital Cost incl construction financing ($/kW)	$7,687
Fixed O&M ($/kW)	$80
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0 60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$128,070
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	23%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	12
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30 0%	
State Tax Credit	24 5%	$ 500,000
No of Systems (WTGs)	35	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$269.99

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		10,074.0	10,074.0	10,074.0	10,074.0	10,074 0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0
Cost of Generation ($/mWh)		$269.99	$269.99	$269.99	$269.99	$269 99	$269.99	$269 99	$269.99	$269.99	$269.99
Operating Revenues		**$2,719,848**	**$2,719,848**	**$2,719,848**	**$2,719,848**	**$2,719,848**	**$2,719,848**	**$2,719,848**	**$2,719,848**	**$2,719,848**	**$2,719,848**
Fixed O&M		$400,000	$410,000	$420,250	$430,756	$441,525	$452,563	$463,877	$475,474	$487,361	$499,545
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$230,618	$236,384	$242,293	$248,350	$254,559	$260,923	$267,446	$274,132	$280,986	$288,010
Land Cost		$128,070	$128,070	$128,070	$128,070	$128,070	$148,468	$148,468	$148,468	$148,468	$148,468
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$13,599	$13,599	$13,599	$13,599	$13,599	$13,599	$13,599	$13,599	$13,599	$13,599
Operating Expenses		**$772,287**	**$788,053**	**$804,212**	**$820,776**	**$837,754**	**$875,554**	**$893,391**	**$911,674**	**$930,414**	**$949,623**
Interest Payment		$1,210,745	$1,187,079	$1,161,283	$1,133,166	$1,102,518	$1,069,112	$1,032,699	$993,009	$949,747	$902,592
Principal Payment	$13,452,720	$262,953	$286,619	$312,415	$340,532	$371,180	$404,586	$440,999	$480,689	$523,951	$571,106
Debt Service		**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**
Tax Depreciation - State	$38,436,343	$7,086,701	$11,390,975	$6,934,435	$4,251,771	$4,228,055	$2,213,837	$207,326	$200,292	$199,331	$199,119
Taxable Income - State		$3,067,019	($10,646,259)	($6,180,083)	($3,485,864)	($3,448,479)	($1,438,655)	$586,432	$614,873	$640,356	$668,514
State Income Tax (benefit)		$184,481	($640,372)	($371,732)	($209,675)	($207,426)	($86,535)	$35,274	$36,985	$38,517	$40,211
Tax Depreciation - Fed'l	$32,670,892	$6,023,696	$9,682,329	$5,894,270	$3,614,005	$3,593,847	$1,881,762	$176,227	$170,248	$169,431	$169,252
Taxable Income - Fed'l		$3,945,543	($8,297,240)	($4,768,185)	($2,638,424)	($2,606,845)	($1,020,044)	$582,257	$607,932	$631,738	$658,171
Federal Income Tax (benefit)		$1,380,940	($2,904,034)	($1,668,865)	($923,448)	($912,396)	($357,015)	$203,790	$212,776	$221,108	$230,360
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$11,530,903									
State Tax Credit		$9,416,904									
Net Taxes (due)		**$19,382,386**	**$3,544,407**	**$2,040,597**	**$1,133,123**	**$1,119,822**	**$443,551**	**($239,064)**	**($249,761)**	**($259,626)**	**($270,571)**
Net Cash Flow	***(24,983,623)***	***19,856,248***	***4,002,504***	***2,482,535***	***1,558,497***	***1,528,218***	***814,147***	***113,695***	***84,715***	***56,110***	***25,956***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

	100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
	100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
	100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
	100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost		(24,983,623)	-$2,245,985	-$2,261,751	-$2,277,910	-$2,294,474	-$2,311,452	-$2,349,252	-$2,367,089	-$2,385,372	-$2,404,112	-$2,423,321
Tax Benefits			$20,440,672	$4,602,693	$3,098,883	$2,191,409	$2,178,108	$1,501,837	$819,222	$808,525	$798,660	$787,715
Subtotal Cost		(24,983,623)	18,194,686	2,340,942	820,973	(103,065)	(133,344)	(847,415)	(1,547,867)	(1,576,847)	(1,605,452)	(1,635,606)
Real Discount Rate		11%										
NPV of EBIT		(13,231,564)										
Effective tax rate		38.91%										
NPV of output		80,223										
Real Level Cost		165										
Level Cost Grossed for Taxes		270	Adjusted for end of year payment level									
Cost in year 1	$	269.99	This should match cell C25									
Difference from B&V		0.00%	This should be zero									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest 11.0%	End Balance	Avg. Balance
1	8.33%	612,630	2,450,520	2,450,520		2,450,520	11,283.3	2,461,803	1,230,902
2	8.33%	612,630	2,450,520	4,901,040	2,461,803	2,450,520	33,953.7	4,946,277	3,704,040
3	8.33%	612,630	2,450,520	7,351,560	4,946,277	2,450,520	56,832.9	7,453,630	6,199,953
4	8.33%	612,630	2,450,520	9,802,080	7,453,630	2,450,520	79,922.8	9,984,073	8,718,851
5	8.33%	612,630	2,450,520	12,252,600	9,984,073	2,450,520	103,225.3	12,537,818	11,260,945
6	8.33%	612,630	2,450,520	14,703,120	12,537,818	2,450,520	126,742.5	15,115,080	13,826,449
7	8.33%	612,630	2,450,520	17,153,640	15,115,080	2,450,520	150,476.1	17,716,077	16,415,579
8	8.33%	612,630	2,450,520	19,604,160	17,716,077	2,450,520	174,428.4	20,341,025	19,028,551
9	8.33%	612,630	2,450,520	22,054,680	20,341,025	2,450,520	198,601.2	22,990,146	21,665,586
10	8.33%	612,630	2,450,520	24,505,200	22,990,146	2,450,520	222,996.6	25,663,663	24,326,904
	100.0%	7,351,560	29,406,240				1,678,543		

Deferred Interest as % of Total Capital Cost	4.566%
Loan Amount excluding Capitalized Interest	29,406,240
Equity funding during construction	7,351,560
Capitalized interest	1,678,543
Total capital cost including interest during construction	38,436,343

Cost of Generation

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	38,436,343
Fed'l depreciation basis	$	32,670,892
State depreciation basis	$	38,436,343
	0	
	0	-11860726.19
	5	-11641072.47
slope		43930.74431

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0
Cost of Generation ($/mWh)	$269.99	$269.99	$269.99	$269.99	$269.99	$269.99	$269.99	$269.99	$269.99	$269.99
Operating Revenues	**$2,719,848**	**$2,719,848**	**$2,719,848**	**$2,719,848**	**$2,719,848**	**$2,719,848**	**$2,719,848**	**$2,719,848**	**$2,719,848**	**$2,719,848**
Fixed O&M	$512,034	$524,835	$537,956	$551,404	$565,190	$579,319	$593,802	$608,647	$623,863	$639,460
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$295,211	$302,591	$310,156	$317,910	$325,857	$334,004	$342,354	$350,913	$359,685	$368,678
Land Cost	$199,529	$199,529	$199,529	$199,529	$199,529	$310,860	$310,860	$310,860	$310,860	$310,860
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$13,599	$13,599	$13,599	$13,599	$13,599	$13,599	$13,599	$13,599	$13,599	$13,599
Operating Expenses	**$1,020,373**	**$1,040,554**	**$1,061,239**	**$1,082,442**	**$1,104,175**	**$1,237,782**	**$1,260,615**	**$1,284,019**	**$1,308,008**	**$1,332,596**
Interest Payment	$851,192	$795,167	$734,099	$667,535	$594,980	$515,895	$429,693	$335,733	$233,316	$121,681
Principal Payment	$622,506	$678,532	$739,599	$806,163	$878,718	$957,803	$1,044,005	$1,137,965	$1,240,382	$1,352,017
Debt Service	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**
Tax Depreciation - State	$199,331	$199,119	$199,331	$199,119	$199,331	$142,426	$85,751	$85,732	$85,751	$85,732
Taxable Income - State	$648,953	$685,009	$725,179	$770,752	$821,362	$823,745	$943,789	$1,014,364	$1,092,773	$1,179,838
State Income Tax (benefit)	$39,035	$41,203	$43,620	$46,361	$49,405	$49,548	$56,769	$61,014	$65,730	$70,967
Tax Depreciation - Fed'l	$169,431	$169,252	$169,431	$169,252	$169,431	$121,062	$72,889	$72,872	$72,889	$72,872
Taxable Income - Fed'l	$639,818	$673,673	$711,459	$754,259	$801,857	$795,561	$899,883	$966,210	$1,039,906	$1,121,731
Federal Income Tax (benefit)	$223,936	$235,786	$249,011	$263,991	$280,650	$278,446	$314,959	$338,174	$363,967	$392,606
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($262,971)**	**($276,989)**	**($292,630)**	**($310,351)**	**($330,055)**	**($327,995)**	**($371,728)**	**($399,188)**	**($429,697)**	**($463,573)**
Net Cash Flow	***(37,193)***	***(71,392)***	***(107,720)***	***(146,643)***	***(188,080)***	***(319,626)***	***(386,192)***	***(437,056)***	***(491,555)***	***(550,019)***
IRR										

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue.

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	-$2,494,071	-$2,514,252	-$2,534,937	-$2,556,140	-$2,577,873	-$2,711,480	-$2,734,313	-$2,757,717	-$2,781,706	-$2,806,294
Tax Benefits	$795,315	$781,297	$765,656	$747,935	$728,231	$730,292	$686,558	$659,099	$628,589	$594,713
Subtotal Cost	(1,698,755)	(1,732,954)	(1,769,282)	(1,808,205)	(1,849,642)	(1,981,188)	(2,047,755)	(2,098,618)	(2,153,117)	(2,211,581)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	5
Capital Cost before construction financing ($/kW)	$5,820
Capital Cost incl construction financing ($/kW)	$6,086
Fixed O&M ($/kW)	$75
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$384,210
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	19%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	12
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	24.5%	$ 350,000
No. of Systems (WTGs)	1	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$407.63

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0
Cost of Generation ($/mWh)		$407.63	$407.63	$407.63	$407.63	$407.63	$407.63	$407.63	$407.63	$407.63	$407.63
Operating Revenues		**$3,392,261**	**$3,392,261**	**$3,392,261**	**$3,392,261**	**$3,392,261**	**$3,392,261**	**$3,392,261**	**$3,392,261**	**$3,392,261**	**$3,392,261**
Fixed O&M		$375,000	$384,375	$393,984	$403,834	$413,930	$424,278	$434,885	$445,757	$456,901	$468,324
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$182,588	$187,153	$191,831	$196,627	$201,543	$206,581	$211,746	$217,040	$222,466	$228,027
Land Cost		$384,210	$384,210	$384,210	$384,210	$384,210	$445,405	$445,405	$445,405	$445,405	$445,405
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$16,961	$16,961	$16,961	$16,961	$16,961	$16,961	$16,961	$16,961	$16,961	$16,961
Operating Expenses		**$958,759**	**$972,699**	**$986,987**	**$1,001,632**	**$1,016,644**	**$1,093,226**	**$1,108,997**	**$1,125,163**	**$1,141,733**	**$1,158,717**
Interest Payment		$958,587	$939,850	$919,426	$897,165	$872,900	$846,451	$817,622	$786,198	$751,946	$714,612
Principal Payment	$10,650,961	$208,189	$226,926	$247,349	$269,610	$293,875	$320,324	$349,153	$380,577	$414,829	$452,164
Debt Service		**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**
Tax Depreciation - State	$30,431,318	$5,610,774	$9,018,610	$5,490,221	$3,366,267	$3,347,491	$1,752,768	$164,147	$158,578	$157,817	$157,649
Taxable Income - State		($3,785,859)	($7,538,898)	($4,004,373)	($1,872,803)	($1,844,774)	($300,184)	$1,301,495	$1,322,322	$1,340,765	$1,361,283
State Income Tax (benefit)		($227,719)	($453,465)	($240,883)	($112,649)	($110,963)	($18,056)	$78,285	$79,538	$80,647	$81,881
Tax Depreciation - Fed'l	$25,866,620	$4,769,158	$7,665,819	$4,666,687	$2,861,327	$2,845,367	$1,489,853	$139,525	$134,791	$134,144	$134,002
Taxable Income - Fed'l		($2,716,523)	($5,732,641)	($2,939,977)	($1,255,214)	($1,231,687)	($19,212)	$1,247,832	$1,266,571	$1,283,791	$1,303,049
Federal Income Tax (benefit)		($950,783)	($2,006,425)	($1,028,992)	($439,325)	($431,090)	($6,724)	$436,741	$443,300	$449,327	$456,067
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$9,129,395									
State Tax Credit		$350,000									
Net Taxes (due)		**$10,657,898**	**$2,459,889**	**$1,269,855**	**$551,974**	**$542,054**	**$24,780**	**($515,026)**	**($522,838)**	**($529,974)**	**($537,948)**
Net Cash Flow	***(19,780,357)***	***11,924,624***	***3,712,678***	***2,508,353***	***1,775,827***	***1,750,895***	***1,157,040***	***601,462***	***577,485***	***553,779***	***528,820***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(19,780,357)	-$2,125,534	-$2,139,474	-$2,153,762	-$2,168,408	-$2,183,419	-$2,260,001	-$2,275,772	-$2,291,938	-$2,308,508	-$2,325,492
Tax Benefits		$11,977,818	$3,779,809	$2,589,775	$1,871,894	$1,861,974	$1,344,701	$804,894	$797,083	$789,946	$781,972
Subtotal Cost	(19,780,357)	9,852,284	1,640,335	436,013	(296,514)	(321,446)	(915,300)	(1,470,878)	(1,494,855)	(1,518,562)	(1,543,520)
Real Discount Rate	11%										
NPV of EBIT	(16,502,729)										
Effective tax rate	38.91%										
NPV of output	66,271										
Real Level Cost	249										
Level Cost Grossed for Taxes	408	Adjusted for end of year payment level									
Cost in year 1	$ 407.63	**This should match cell C25**									
Difference from B&V	**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	8.33%	485,039	1,940,157	1,940,157	-	1,940,157	8,933.3	1,949,091	974,545
2	8.33%	485,039	1,940,157	3,880,315	1,949,091	1,940,157	26,882.3	3,916,130	2,932,610
3	8.33%	485,039	1,940,157	5,820,472	3,916,130	1,940,157	44,996.5	5,901,284	4,908,707
4	8.33%	485,039	1,940,157	7,760,629	5,901,284	1,940,157	63,277.5	7,904,719	6,903,002
5	8.33%	485,039	1,940,157	9,700,787	7,904,719	1,940,157	81,726.9	9,926,603	8,915,661
6	8.33%	485,039	1,940,157	11,640,944	9,926,603	1,940,157	100,346.2	11,967,107	10,946,855
7	8.33%	485,039	1,940,157	13,581,101	11,967,107	1,940,157	119,136.9	14,026,401	12,996,754
8	8.33%	485,039	1,940,157	15,521,259	14,026,401	1,940,157	138,100.7	16,104,659	15,065,530
9	8.33%	485,039	1,940,157	17,461,416	16,104,659	1,940,157	157,239.1	18,202,055	17,153,357
10	8.33%	485,039	1,940,157	19,401,573	18,202,055	1,940,157	176,553.8	20,318,766	19,260,411
	100.0%	5,820,472	23,281,888				1,328,958		
Deferred Interest as % of Total Capital Cost							4.566%		

Loan Amount excluding Capitalized Interest	23,281,888
Equity funding during construction	5,820,472
Capitalized Interest	1,328,958
Total capital cost including interest during construction	30,431,318

Cost of Generation

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	30,431,318
Fed'l depreciation basis	$	25,866,620
State depreciation basis	$	30,431,318
	0	
	0	-14792986.45
	5	-14611533.38
slope		36290.61486

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0
Cost of Generation ($/mWh)	$407.63	$407.63	$407.63	$407.63	$407.63	$407.63	$407.63	$407.63	$407.63	$407.63
Operating Revenues	**$3,392,261**	**$3,392,261**	**$3,392,261**	**$3,392,261**	**$3,392,261**	**$3,392,261**	**$3,392,261**	**$3,392,261**	**$3,392,261**	**$3,392,261**
Fixed O&M	$480,032	$492,032	$504,333	$516,942	$529,865	$543,112	$556,690	$570,607	$584,872	$599,494
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$233,728	$239,571	$245,560	$251,699	$257,992	$264,442	$271,053	$277,829	$284,775	$291,894
Land Cost	$598,587	$598,587	$598,587	$598,587	$598,587	$932,579	$932,579	$932,579	$932,579	$932,579
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$16,961	$16,961	$16,961	$16,961	$16,961	$16,961	$16,961	$16,961	$16,961	$16,961
Operating Expenses	**$1,329,308**	**$1,347,152**	**$1,365,442**	**$1,384,189**	**$1,403,405**	**$1,757,093**	**$1,777,282**	**$1,797,976**	**$1,819,187**	**$1,840,928**
Interest Payment	$673,917	$629,560	$581,210	$528,509	$471,065	$408,451	$340,202	$265,811	$184,724	$96,339
Principal Payment	$492,858	$537,216	$585,565	$638,266	$695,710	$758,324	$826,573	$900,965	$982,051	$1,070,436
Debt Service	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**
Tax Depreciation - State	$157,817	$157,649	$157,817	$157,649	$157,817	$112,763	$67,892	$67,877	$67,892	$67,877
Taxable Income - State	$1,231,220	$1,257,900	$1,287,792	$1,321,913	$1,359,974	$1,113,953	$1,206,884	$1,260,597	$1,320,458	$1,387,117
State Income Tax (benefit)	$74,058	$75,663	$77,461	$79,513	$81,802	$67,004	$72,594	$75,825	$79,426	$83,435
Tax Depreciation - Fed'l	$134,144	$134,002	$134,144	$134,002	$134,144	$95,849	$57,708	$57,695	$57,708	$57,695
Taxable Income - Fed'l	$1,180,834	$1,205,885	$1,234,004	$1,266,047	$1,301,844	$1,063,863	$1,144,474	$1,194,954	$1,251,216	$1,313,863
Federal Income Tax (benefit)	$413,292	$422,060	$431,901	$443,117	$455,645	$372,352	$400,566	$418,234	$437,926	$459,852
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($487,350)**	**($497,722)**	**($509,362)**	**($522,630)**	**($537,448)**	**($439,356)**	**($473,160)**	**($494,059)**	**($517,351)**	**($543,287)**
Net Cash Flow	***408,828***	***380,612***	***350,682***	***318,667***	***284,633***	***29,036***	***(24,957)***	***(66,549)***	***(111,052)***	***(158,729)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0 000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5 9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4 461%

Exp and Debt Cost	-$2,496,083	-$2,513,927	-$2,532,217	-$2,550,964	-$2,570,180	-$2,923,869	-$2,944,057	-$2,964,751	-$2,985,962	-$3,007,703
Tax Benefits	$832,570	$822,198	$810,558	$797,291	$782,472	$880,564	$846,760	$825,861	$802,569	$776,633
Subtotal Cost	(1,663,513)	(1,691,729)	(1,721,659)	(1,753,674)	(1,787,708)	(2,043,305)	(2,097,297)	(2,138,890)	(2,183,393)	(2,231,070)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	1
Capital Cost before construction financing ($/kW)	$8,365
Capital Cost incl construction financing ($/kW)	$8,553
Fixed O&M ($/kW)	$50
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$64,035
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	22%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	6
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	24.5%	$ 500,000
No. of Systems (WTGs)	5	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$328.59

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		1,927.2	1,912.7	1,898.4	1,884.2	1,870.0	1,856.0	1,842.1	1,828.3	1,814.6	1,800.9
Cost of Generation ($/mWh)		$328.59	$328.59	$328.59	$328.59	$328.59	$328.59	$328.59	$328.59	$328.59	$328.59
Operating Revenues		**$633,250**	**$628,501**	**$623,787**	**$619,108**	**$614,465**	**$609,857**	**$605,283**	**$600,743**	**$596,238**	**$591,766**
Fixed O&M		$50,000	$51,250	$52,531	$53,845	$55,191	$56,570	$57,985	$59,434	$60,920	$62,443
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$51,318	$52,601	$53,916	$55,264	$56,645	$58,061	$59,513	$61,001	$62,526	$64,089
Land Cost		$64,035	$64,035	$64,035	$64,035	$64,035	$74,234	$74,234	$74,234	$74,234	$74,234
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$3,166	$3,143	$3,119	$3,096	$3,072	$3,049	$3,026	$3,004	$2,981	$2,959
Operating Expenses		**$168,519**	**$171,028**	**$173,601**	**$176,239**	**$178,943**	**$191,915**	**$194,758**	**$197,673**	**$200,661**	**$203,725**
Interest Payment		$269,418	$264,152	$258,412	$252,155	$245,335	$237,901	$229,799	$220,967	$211,340	$200,847
Principal Payment	$2,993,533	$58,513	$63,779	$69,519	$75,776	$82,596	$90,030	$98,132	$106,964	$116,591	$127,084
Debt Service		**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**
Tax Depreciation - State	$8,552,950	$1,576,950	$2,534,748	$1,543,068	$946,115	$940,837	$492,629	$46,135	$44,569	$44,356	$44,309
Taxable Income - State		$713,836	($2,341,427)	($1,351,293)	($755,400)	($750,650)	($312,588)	$134,591	$137,534	$139,881	$142,885
State Income Tax (benefit)		$42,937	($140,837)	($81,280)	($45,437)	($45,152)	($18,802)	$8,096	$8,273	$8,414	$8,595
Tax Depreciation - Fed'l	$7,270,008	$1,340,408	$2,154,536	$1,311,608	$804,197	$799,712	$418,734	$39,214	$37,884	$37,702	$37,662
Taxable Income - Fed'l		$907,441	($1,820,378)	($1,038,553)	($568,045)	($564,373)	($219,892)	$133,416	$135,947	$138,120	$140,937
Federal Income Tax (benefit)		$317,604	($637,132)	($363,494)	($198,816)	($197,531)	($76,962)	$46,696	$47,581	$48,342	$49,328
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$2,565,885									
State Tax Credit		$2,095,473									
Net Taxes (due)		**$4,300,816**	**$777,969**	**$444,774**	**$244,253**	**$242,682**	**$95,764**	**($54,791)**	**($55,854)**	**($56,756)**	**($57,923)**
Net Cash Flow	***(5,559,418)***	***4,437,616***	***907,511***	***567,029***	***359,192***	***350,273***	***185,775***	***27,803***	***19,285***	***10,890***	***2,187***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(5,559,418)	-$496,450	-$498,959	-$501,532	-$504,170	-$506,874	-$519,846	-$522,689	-$525,604	-$528,592	-$531,656
Tax Benefits		$4,547,212	$1,022,517	$687,488	$485,147	$481,769	$333,058	$180,723	$177,894	$175,239	$172,332
Subtotal Cost	(5,559,418)	4,050,762	523,558	185,956	(19,023)	(25,105)	(186,788)	(341,966)	(347,710)	(353,353)	(359,324)
Real Discount Rate	11%										
NPV of EBIT	(2,941,089)										
Effective tax rate	38.91%										
NPV of output	14,652										
Real Level Cost	201										
Level Cost Grossed for Taxes	329	Adjusted for end of year payment level									
Cost in year 1	**$ 328.59**	**This should match cell C25**									
Diffference from B&V	**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	16.67%	278,848	1,115,392	1,115,392		1,115,392	5,135.8	1,120,528	560,264
2	16.67%	278,848	1,115,392	2,230,784	1,120,528	1,115,392	15,454.6	2,251,374	1,685,951
3	16.67%	278,848	1,115,392	3,346,176	2,251,374	1,115,392	25,868.4	3,392,635	2,822,004
4	16.67%	278,848	1,115,392	4,461,568	3,392,635	1,115,392	36,378.1	4,544,405	3,968,520
5	16.67%	278,848	1,115,392	5,576,960	4,544,405	1,115,392	46,984.6	5,706,781	5,125,593
6	16.67%	278,848	1,115,392	6,692,352	5,706,781	1,115,392	57,688.8	6,879,862	6,293,322
7	0.00%								
8	0.00%								
9	0.00%								
10	0.00%								
	100.0%	1,673,088	6,692,352				187,510		
Deferred Interest as % of Total Capital Cost							2.241%		

Loan Amount excluding Capitalized Interest	6,692,352
Equity funding during construction	1,673,088
Capitalized Interest	187,510
Total capital cost including interest during construction	8,552,950

Cost of Generation

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	8,552,950
Fed'l depreciation basis	$	7,270,008
State depreciation basis	$	8,552,950
	0	
	0	-2636381 672
	5	-2596264.538
slope		8023 426776

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	1,787.4	1,774.0	1,760.7	1,747.5	1,734 4	1,721.4	1,708.5	1,695 7	1,683 0	1,670.3
Cost of Generation ($/mWh)	$328.59	$328.59	$328.59	$328.59	$328.59	$328.59	$328.59	$328 59	$328.59	$328.59
Operating Revenues	**$587,327**	**$582,923**	**$578,551**	**$574,211**	**$569,905**	**$565,631**	**$561,388**	**$557,178**	**$552,999**	**$548,852**
Fixed O&M	$64,004	$65,604	$67,244	$68,926	$70,649	$72,415	$74,225	$76,081	$77,983	$79,933
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$65,691	$67,333	$69,017	$70,742	$72,511	$74,323	$76,181	$78,086	$80,038	$82,039
Land Cost	$99,764	$99,764	$99,764	$99,764	$99,764	$155,430	$155,430	$155,430	$155,430	$155,430
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$2,937	$2,915	$2,893	$2,871	$2,850	$2,828	$2,807	$2,786	$2,765	$2,744
Operating Expenses	**$232,396**	**$235,617**	**$238,918**	**$242,303**	**$245,773**	**$304,996**	**$308,643**	**$312,383**	**$316,216**	**$320,146**
Interest Payment	$189,409	$176,942	$163,353	$148,541	$132,396	$114,798	$95,616	$74,708	$51,918	$27,077
Principal Payment	$138,522	$150,989	$164,577	$179,389	$195,535	$213,133	$232,315	$253,223	$276,013	$300,854
Debt Service	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**
Tax Depreciation - State	$44,356	$44,309	$44,356	$44,309	$44,356	$31,693	$19,082	$19,077	$19,082	$19,077
Taxable Income - State	$121,166	$126,055	$131,923	$139,058	$147,380	$114,143	$138,047	$151,010	$165,784	$182,552
State Income Tax (benefit)	$7,288	$7,582	$7,935	$8,364	$8,865	$6,866	$8,304	$9,083	$9,972	$10,980
Tax Depreciation - Fed'l	$37,702	$37,662	$37,702	$37,662	$37,702	$26,939	$16,219	$16,216	$16,219	$16,216
Taxable Income - Fed'l	$120,531	$125,119	$130,641	$137,340	$145,168	$112,031	$132,606	$144,788	$158,674	$174,433
Federal Income Tax (benefit)	$42,186	$43,792	$45,725	$48,069	$50,809	$39,211	$46,412	$50,676	$55,536	$61,052
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($49,474)**	**($51,374)**	**($53,660)**	**($56,433)**	**($59,674)**	**($46,077)**	**($54,716)**	**($59,759)**	**($65,508)**	**($72,032)**
Net Cash Flow	***(22,474)***	***(31,999)***	***(41,958)***	***(52,458)***	***(63,473)***	***(113,373)***	***(129,901)***	***(142,895)***	***(156,655)***	***(171,257)***
IRR										

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%
Exp and Debt Cost	-$560,327	-$563,548	-$566,849	-$570,234	-$573,704	-$632,927	-$636,574	-$640,313	-$644,147	-$648,077
Tax Benefits	$179,054	$175,440	$171,453	$166,991	$162,075	$174,009	$163,719	$157,037	$149,663	$141,525
Subtotal Cost	(381,274)	(388,108)	(395,396)	(403,243)	(411,629)	(458,918)	(472,855)	(483,276)	(494,484)	(506,552)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue.

Technology Assumptions	
Project Capacity (MW)	1
Capital Cost before construction financing ($/kW)	$8,562
Capital Cost incl construction financing ($/kW)	$8,754
Fixed O&M ($/kW)	$80
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$25,614
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	21%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	6
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	24.5%	$ 500,000
No. of Systems (WTGs)	5	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$327.12

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6
Cost of Generation ($/mWh)		$327.12	$327.12	$327.12	$327.12	$327.12	$327.12	$327.12	$327.12	$327.12	$327.12
Operating Revenues		**$601,774**	**$601,774**	**$601,774**	**$601,774**	**$601,774**	**$601,774**	**$601,774**	**$601,774**	**$601,774**	**$601,774**
Fixed O&M		$80,000	$82,000	$84,050	$86,151	$88,305	$90,513	$92,775	$95,095	$97,472	$99,909
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$52,524	$53,837	$55,183	$56,563	$57,977	$59,426	$60,912	$62,435	$63,996	$65,596
Land Cost		$25,614	$25,614	$25,614	$25,614	$25,614	$29,694	$29,694	$29,694	$29,694	$29,694
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$3,009	$3,009	$3,009	$3,009	$3,009	$3,009	$3,009	$3,009	$3,009	$3,009
Operating Expenses		**$161,147**	**$164,460**	**$167,856**	**$171,337**	**$174,905**	**$182,642**	**$186,390**	**$190,232**	**$194,170**	**$198,207**
Interest Payment		$275,752	$270,362	$264,487	$258,083	$251,103	$243,495	$235,202	$226,162	$216,309	$205,569
Principal Payment	$3,063,916	$59,889	$65,279	$71,154	$77,558	$84,538	$92,146	$100,439	$109,479	$119,332	$130,072
Debt Service		**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**
Tax Depreciation - State	$8,754,045	$1,614,027	$2,594,344	$1,579,348	$968,359	$962,958	$504,211	$47,219	$45,617	$45,398	$45,350
Taxable Income - State		$695,589	($2,427,393)	($1,409,917)	($796,005)	($787,192)	($328,573)	$132,963	$139,763	$145,896	$152,648
State Income Tax (benefit)		$41,840	($146,008)	($84,807)	($47,880)	($47,350)	($19,764)	$7,998	$8,407	$8,776	$9,182
Tax Depreciation - Fed'l	$7,440,938	$1,371,923	$2,205,193	$1,342,446	$823,105	$818,514	$428,579	$40,136	$38,775	$38,589	$38,548
Taxable Income - Fed'l		$895,853	($1,892,233)	($1,088,208)	($602,872)	($595,399)	($233,178)	$132,048	$138,198	$143,930	$150,268
Federal Income Tax (benefit)		$313,549	($662,282)	($380,873)	($211,005)	($208,390)	($81,612)	$46,217	$48,369	$50,376	$52,594
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$2,626,213									
State Tax Credit		$2,144,741									
Net Taxes (due)		**$4,415,566**	**$808,289**	**$465,879**	**$258,885**	**$255,739**	**$101,376**	**($54,215)**	**($56,776)**	**($59,151)**	**($61,776)**
Net Cash Flow	***(5,690,129)***	***4,520,552***	***909,962***	***563,956***	***353,681***	***346,967***	***184,868***	***25,528***	***19,125***	***12,811***	***6,150***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(5,690,129)	-$496,788	-$500,101	-$503,497	-$506,978	-$510,546	-$518,283	-$522,031	-$525,873	-$529,812	-$533,848
Tax Benefits		$4,649,715	$1,042,438	$699,828	$493,034	$489,888	$335,525	$179,934	$177,373	$174,998	$172,373
Subtotal Cost	(5,690,129)	4,152,927	542,337	196,331	(13,944)	(20,658)	(182,758)	(342,097)	(348,501)	(354,814)	(361,475)
Real Discount Rate	11%										
NPV of EBIT	(2,927,522)										
Effective tax rate	38.91%										
NPV of output	14,649										
Real Level Cost	200										
Level Cost Grossed for Taxes	327	Adjusted for end of year payment level									
Cost in year 1	**$ 327.12**	**This should match cell C25**									
Diffference from B&V	**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg Balance	Additions	Interest 1.10%	End Balance	Avg Balance
1	16.67%	285,404	1,141,617	1,141,617		1,141,617	5,256.5	1,146,873	573,437
2	16.67%	285,404	1,141,617	2,283,234	1,146,873	1,141,617	15,817.9	2,304,308	1,725,591
3	16.67%	285,404	1,141,617	3,424,850	2,304,308	1,141,617	26,476.6	3,472,401	2,888,355
4	16.67%	285,404	1,141,617	4,566,467	3,472,401	1,141,617	37,233.4	4,651,252	4,061,826
5	16.67%	285,404	1,141,617	5,708,084	4,651,252	1,141,617	48,089.3	5,840,958	5,246,105
6	16.67%	285,404	1,141,617	6,849,701	5,840,958	1,141,617	59,045.1	7,041,620	6,441,289
7	0.00%								
8	0.00%								
9	0.00%								
10	0.00%								
	100.0%	1,712,425	6,849,701				191,919		
Deferred Interest as % of Total Capital Cost							2.241%		
Loan Amount excluding Capitalized Interest			6,849,701						
Equity funding during construction			1,712,425						
Capitalized interest			191,919						
Total capital cost including interest during construction			8,754,045						

Cost of Generation

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	8,754,045
Fed'l depreciation basis	$	7,440,938
State depreciation basis	$	8,754,045
	0	
	0	-2624220.223
	5	-2584109.544
slope		8022.135917

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6
Cost of Generation ($/mWh)	$327.12	$327.12	$327.12	$327.12	$327.12	$327.12	$327.12	$327.12	$327.12	$327.12
Operating Revenues	**$601,774**	**$601,774**	**$601,774**	**$601,774**	**$601,774**	**$601,774**	**$601,774**	**$601,774**	**$601,774**	**$601,774**
Fixed O&M	$102,407	$104,967	$107,591	$110,281	$113,038	$115,864	$118,760	$121,729	$124,773	$127,892
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$67,236	$68,916	$70,639	$72,405	$74,215	$76,071	$77,973	$79,922	$81,920	$83,968
Land Cost	$39,906	$39,906	$39,906	$39,906	$39,906	$62,172	$62,172	$62,172	$62,172	$62,172
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$3,009	$3,009	$3,009	$3,009	$3,009	$3,009	$3,009	$3,009	$3,009	$3,009
Operating Expenses	**$212,557**	**$216,798**	**$221,145**	**$225,601**	**$230,168**	**$257,115**	**$261,914**	**$266,832**	**$271,873**	**$277,041**
Interest Payment	$193,863	$181,103	$167,194	$152,034	$135,509	$117,497	$97,865	$76,465	$53,139	$27,713
Principal Payment	$141,778	$154,539	$168,447	$183,607	$200,132	$218,144	$237,777	$259,177	$282,502	$307,928
Debt Service	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**
Tax Depreciation - State	$45,398	$45,350	$45,398	$45,350	$45,398	$32,438	$19,530	$19,526	$19,530	$19,526
Taxable Income - State	$149,956	$158,523	$168,037	$178,789	$190,699	$194,723	$222,466	$238,952	$257,232	$277,494
State Income Tax (benefit)	$9,020	$9,535	$10,107	$10,754	$11,471	$11,713	$13,381	$14,373	$15,473	$16,691
Tax Depreciation - Fed'l	$38,589	$38,548	$38,589	$38,548	$38,589	$27,572	$16,601	$16,597	$16,601	$16,597
Taxable Income - Fed'l	$147,746	$155,791	$164,739	$174,838	$186,038	$187,876	$212,014	$227,508	$244,689	$263,732
Federal Income Tax (benefit)	$51,711	$54,527	$57,659	$61,193	$65,113	$65,757	$74,205	$79,628	$85,641	$92,306
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($60,731)**	**($64,062)**	**($67,766)**	**($71,947)**	**($76,584)**	**($77,469)**	**($87,586)**	**($94,001)**	**($101,114)**	**($108,997)**
Net Cash Flow	***(7,155)***	***(14,727)***	***(22,778)***	***(31,415)***	***(40,619)***	***(68,452)***	***(83,367)***	***(94,700)***	***(106,854)***	***(119,905)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

	100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
	100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
	100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
	100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%
Exp and Debt Cost		-$548,198	-$552,439	-$556,786	-$561,242	-$565,809	-$592,757	-$597,555	-$602,473	-$607,515	-$612,682
Tax Benefits		$173,418	$170,087	$166,383	$162,202	$157,565	$156,680	$146,563	$140,148	$133,035	$125,151
Subtotal Cost		(374,780)	(382,352)	(390,403)	(399,040)	(408,244)	(436,077)	(450,992)	(462,325)	(474,479)	(487,530)
Real Discount Rate											
NPV of EBIT											
Effective tax rate											
NPV of output											
Real Level Cost											
Level Cost Grossed for Taxes											
Cost in year 1											
Diffference from B&V											

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	1
Capital Cost before construction financing ($/kW)	$7,777
Capital Cost incl construction financing ($/kW)	$7,951
Fixed O&M ($/kW)	$75
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$102,456
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	21%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	6
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	24.5%	$ 350,000
No. of Systems (WTGs)	1	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$457.05

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2
Cost of Generation ($/mWh)		$457.05	$457.05	$457.05	$457.05	$457.05	$457.05	$457.05	$457.05	$457.05	$457.05
Operating Revenues		**$832,378**	**$832,378**	**$832,378**	**$832,378**	**$832,378**	**$832,378**	**$832,378**	**$832,378**	**$832,378**	**$832,378**
Fixed O&M		$75,000	$76,875	$78,797	$80,767	$82,786	$84,856	$86,977	$89,151	$91,380	$93,665
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$47,705	$48,898	$50,120	$51,373	$52,658	$53,974	$55,323	$56,707	$58,124	$59,577
Land Cost		$102,456	$102,456	$102,456	$102,456	$102,456	$118,775	$118,775	$118,775	$118,775	$118,775
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$4,162	$4,162	$4,162	$4,162	$4,162	$4,162	$4,162	$4,162	$4,162	$4,162
Operating Expenses		**$229,323**	**$232,391**	**$235,535**	**$238,758**	**$242,061**	**$261,766**	**$265,237**	**$268,794**	**$272,441**	**$276,178**
Interest Payment		$250,452	$245,557	$240,221	$234,405	$228,065	$221,154	$213,622	$205,412	$196,463	$186,708
Principal Payment	$2,782,805	$54,394	$59,289	$64,626	$70,442	$76,782	$83,692	$91,224	$99,434	$108,383	$118,138
Debt Service		**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**
Tax Depreciation - State	$7,950,870	$1,465,942	$2,356,316	$1,434,444	$879,513	$874,608	$457,950	$42,887	$41,432	$41,233	$41,189
Taxable Income - State		($763,340)	($2,001,886)	($1,077,823)	($520,298)	($512,356)	($108,493)	$310,631	$316,739	$322,241	$328,301
State Income Tax (benefit)		($45,915)	($120,413)	($64,831)	($31,296)	($30,818)	($6,526)	$18,684	$19,052	$19,383	$19,747
Tax Depreciation - Fed'l	$6,758,240	$1,246,050	$2,002,869	$1,219,278	$747,586	$743,417	$389,258	$36,454	$35,217	$35,048	$35,011
Taxable Income - Fed'l		($497,534)	($1,528,025)	($797,825)	($357,075)	($350,347)	($33,275)	$298,380	$303,902	$309,043	$314,732
Federal Income Tax (benefit)		($174,137)	($534,809)	($279,239)	($124,976)	($122,621)	($11,646)	$104,433	$106,366	$108,165	$110,156
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$2,385,261									
State Tax Credit		$350,000									
Net Taxes (due)		**$2,955,313**	**$655,222**	**$344,070**	**$156,272**	**$153,440**	**$18,172**	**($123,117)**	**($125,418)**	**($127,548)**	**($129,904)**
Net Cash Flow	***(5,168,066)***	***3,253,521***	***950,363***	***636,066***	***445,045***	***438,909***	***283,937***	***139,177***	***133,319***	***127,543***	***121,449***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(5,168,066)	-$534,170	-$537,237	-$540,382	-$543,604	-$546,908	-$566,613	-$570,083	-$573,641	-$577,287	-$581,025
Tax Benefits		$3,279,189	$979,098	$667,946	$480,148	$477,316	$342,048	$200,759	$198,458	$196,328	$193,972
Subtotal Cost	(5,168,066)	2,745,019	441,861	127,564	(63,456)	(69,592)	(224,564)	(369,325)	(375,182)	(380,959)	(387,053)
Real Discount Rate	11%										
NPV of EBIT	(4,049,365)										
Effective tax rate	38.91%										
NPV of output	14,503										
Real Level Cost	279										
Level Cost Grossed for Taxes	457	Adjusted for end of year payment level									
Cost in year 1	$ 457.05	**This should match cell C25**									
Diffference from B&V	**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest 11.0%	End Balance	Avg. Balance
1	16.67%	259,219	1,036,875	1,036,875	-	1,036,875	4,774.2	1,041,649	520,824
2	16.67%	259,219	1,036,875	2,073,749	1,041,649	1,036,875	14,366.6	2,092,890	1,567,270
3	16.67%	259,219	1,036,875	3,110,624	2,092,890	1,036,875	24,047.4	3,153,812	2,623,351
4	16.67%	259,219	1,036,875	4,147,499	3,153,812	1,036,875	33,817.3	4,224,504	3,689,158
5	16.67%	259,219	1,036,875	5,184,373	4,224,504	1,036,875	43,677.2	5,305,056	4,764,780
6	16.67%	259,219	1,036,875	6,221,248	5,305,056	1,036,875	53,627.8	6,395,558	5,850,307
7	0.00%	-	-	-	-	-	-	-	-
8	0.00%	-	-	-	-	-	-	-	-
9	0.00%	-	-	-	-	-	-	-	-
10	0.00%	-	-	-	-	-	-	-	-
	100.0%	1,555,312	6,221,248				174,310		
Deferred Interest as % of Total Capital Cost							2.241%		

Loan Amount excluding Capitalized Interest	6,221,248
Equity funding during construction	1,555,312
Capitalized interest	174,310
Total capital cost including interest during construction	7,950,870

Cost of Generation

All inputs are in blue

Technology/Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financng	$	7,950,870
Fed'l depreciation basis	$	6,758,240
State depreciation basis	$	7,950,870
	0	
	0	-3629835.907
	5	-3590126.334
slope		7941.914558

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2
Cost of Generation ($/mWh)	$457.05	$457.05	$457.05	$457.05	$457.05	$457.05	$457.05	$457.05	$457.05	$457.05
Operating Revenues	**$832,378**	**$832,378**	**$832,378**	**$832,378**	**$832,378**	**$832,378**	**$832,378**	**$832,378**	**$832,378**	**$832,378**
Fixed O&M	$96,006	$98,406	$100,867	$103,388	$105,973	$108,622	$111,338	$114,121	$116,974	$119,899
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$61,067	$62,593	$64,158	$65,762	$67,406	$69,091	$70,819	$72,589	$74,404	$76,264
Land Cost	$159,623	$159,623	$159,623	$159,623	$159,623	$248,688	$248,688	$248,688	$248,688	$248,688
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$4,162	$4,162	$4,162	$4,162	$4,162	$4,162	$4,162	$4,162	$4,162	$4,162
Operating Expenses	**$320,858**	**$324,785**	**$328,810**	**$332,936**	**$337,164**	**$430,563**	**$435,006**	**$439,560**	**$444,228**	**$449,012**
Interest Payment	$176,076	$164,487	$151,854	$138,085	$123,076	$106,717	$88,886	$69,449	$48,263	$25,171
Principal Payment	$128,770	$140,360	$152,992	$166,761	$181,770	$198,129	$215,961	$235,397	$256,583	$279,676
Debt Service	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**
Tax Depreciation - State	$41,233	$41,189	$41,233	$41,189	$41,233	$29,462	$17,738	$17,734	$17,738	$17,734
Taxable Income - State	$294,210	$301,917	$310,480	$320,168	$330,904	$265,635	$290,748	$305,634	$322,148	$340,460
State Income Tax (benefit)	$17,697	$18,160	$18,675	$19,258	$19,904	$15,978	$17,488	$18,384	$19,377	$20,479
Tax Depreciation - Fed'l	$35,048	$35,011	$35,048	$35,011	$35,048	$25,043	$15,078	$15,074	$15,078	$15,074
Taxable Income - Fed'l	$282,699	$289,935	$297,990	$307,088	$317,185	$254,077	$275,920	$289,910	$305,432	$322,642
Federal Income Tax (benefit)	$98,944	$101,477	$104,296	$107,481	$111,015	$88,927	$96,572	$101,469	$106,901	$112,925
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($116,641)**	**($119,637)**	**($122,972)**	**($126,739)**	**($130,919)**	**($104,905)**	**($114,060)**	**($119,853)**	**($126,278)**	**($133,403)**
Net Cash Flow	***90,032***	***83,109***	***75,749***	***67,857***	***59,448***	***(7,937)***	***(21,535)***	***(31,881)***	***(42,975)***	***(54,884)***
IRR										

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue.

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	-$625,704	-$629,631	-$633,656	-$637,782	-$642,011	-$735,410	-$739,853	-$744,406	-$749,074	-$753,859
Tax Benefits	$207,235	$204,239	$200,904	$197,137	$192,958	$218,971	$209,816	$204,024	$197,598	$190,473
Subtotal Cost	(418,470)	(425,393)	(432,752)	(440,645)	(449,053)	(516,438)	(530,037)	(540,383)	(551,476)	(563,386)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

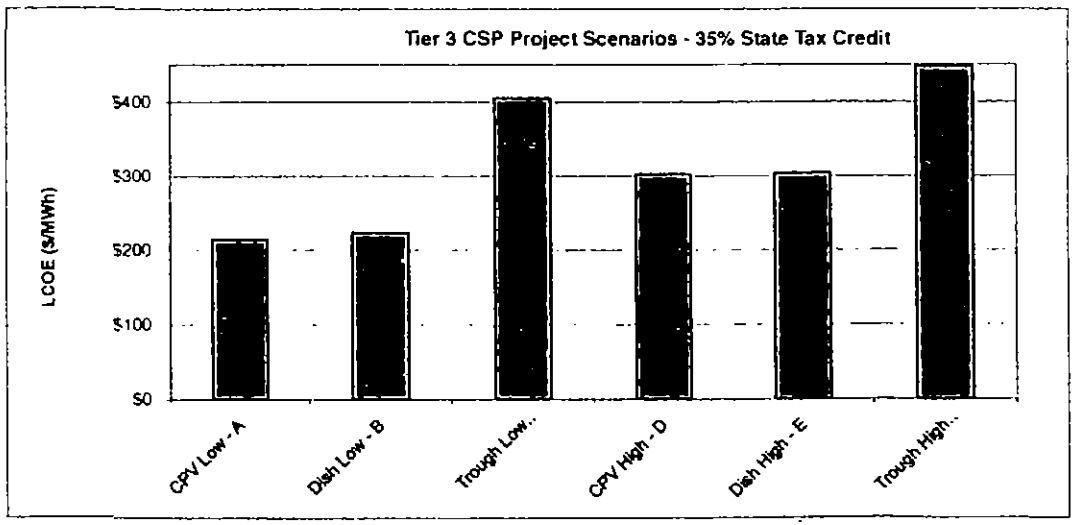
Tier 3 CSP

500kW-5MW

Inputs	CPV Low - A	Dish Low - B	Trough Low - C	CPV High - D	Dish High - E	Trough High - F
Size (kW)	5000	5000	5,000	1,000	1,000	1,000
Production (kWh/kW)	2015	2015	2015	1927	1840	1821
Curtailment (%/year)	0%	0%	0%	0%	0%	0%
Contract life	20	20	20	20	20	20
System life	20	20	20	20	20	20
Annual degradation (%/year)	0.75%	0%	0%	0.75%	0%	0%
Capacity Factor	23%	23%	19%	22%	21%	21%
Capital Costs						
Stirling Dish Capital Costs		$7,167			$7,852	
Solar Trough Capital Costs			$5,535			$7,007
CPV Capital Costs	$5,889			$7,054		
Interconnection	$255	$255	$255	$560	$560	$560
Hawaii Permitting	$30	$30	$30	$150	$150	$150
Total Installed Cost	$6,174	$7,452	$5,820	$8,765	$8,562	$7,777
O&M Costs						
Consolidated O&M ($/kWh)	$0	$0	$74	$60	$80	$74
Other Costs						
Insurance (% Capital/year)	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%
Property Tax ($/year)	$0	$0	$0	$0	$0	$0
Land ($/year)	$250,000	$100,000	$300,000	$40,000	$20,000	$80,000
Financing						
Debt percentage (%)	35%	35%	35%	35%	35%	35%
Debt rate (%)	9%	9%	9%	9%	9%	9%
Debt tenor (years)	20	20	20	20	20	20
Equity rate (%)	11%	11%	11%	11%	11%	11%
Construction Debt Percentage (%)	80%	80%	80%	80%	80%	80%
Construction Debt Rate (%)	11%	11%	11%	11%	11%	11%
Construction Debt Term (months)	12	12	12	6	6	6
Tax Incentives						
Depreciation Years	5	5	5	5	5	5
ITC ($/MWh) for 10 years	NA	NA	NA	NA	NA	NA
Federal ITC (%)	30%	30%	30%	30%	30%	30%
State ITC (%)	35%	35%	35%	35%	35%	35%
# of systems	1	1	1	5	5	1
Tax Rate (all in)	40%	40%	40%	40%	40%	40%
LCOE ($/MWh)	$215	$224	$406	$304	$305	$448

Midpoint of range (proposed tariff) $331

Key Inputs	A	B	C	D	E	F
Size (kW)	5,000	5,000	5,000	1,000	1,000	1,000
Capacity Factor (%)	23%	23%	19%	22%	21%	21%
Installed Cost ($/kW)	$6,174	$7,452	$5,820	$8,765	$8,562	$7,777
LCOE	$215	$224	$406	$304	$305	$448



Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	5
Capital Cost before construction financing ($/kW)	$6,174
Capital Cost incl construction financing ($/kW)	$6,456
Fixed O&M ($/kW)	$50
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$320,175
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	23%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	12
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	35.0%	$ 500,000
No. of Systems (WTGs)	35	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$215.15

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		10,074.0	9,998.4	9,923.5	9,849.0	9,775.2	9,701.8	9,629.1	9,556.9	9,485.2	9,414.1
Cost of Generation ($/mWh)		$215.15	$215.15	$215.15	$215.15	$215.15	$215.15	$215.15	$215.15	$215.15	$215.15
Operating Revenues		**$2,167,441**	**$2,151,185**	**$2,135,051**	**$2,119,038**	**$2,103,146**	**$2,087,372**	**$2,071,717**	**$2,056,179**	**$2,040,758**	**$2,025,452**
Fixed O&M		$250,000	$256,250	$262,656	$269,223	$275,953	$282,852	$289,923	$297,171	$304,601	$312,216
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$193,672	$198,514	$203,476	$208,563	$213,777	$219,122	$224,600	$230,215	$235,970	$241,870
Land Cost		$320,175	$320,175	$320,175	$320,175	$320,175	$371,171	$371,171	$371,171	$371,171	$371,171
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$10,837	$10,756	$10,675	$10,595	$10,516	$10,437	$10,359	$10,281	$10,204	$10,127
Operating Expenses		**$774,684**	**$785,695**	**$796,983**	**$808,556**	**$820,421**	**$883,581**	**$896,052**	**$908,838**	**$921,945**	**$935,383**
Interest Payment		$1,016,777	$996,902	$975,239	$951,627	$925,889	$897,834	$867,255	$833,924	$797,593	$757,992
Principal Payment	$11,297,521	$220,827	$240,701	$262,364	$285,977	$311,715	$339,769	$370,349	$403,680	$440,011	$479,612
Debt Service		**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**
Tax Depreciation - State	$32,278,631	$5,951,373	$9,566,079	$5,823,501	$3,570,614	$3,550,698	$1,859,168	$174,111	$168,204	$167,397	$167,219
Taxable Income - State		$5,722,128	($9,197,491)	($5,460,672)	($3,211,758)	($3,193,862)	($1,553,212)	$134,298	$145,213	$153,823	$164,858
State Income Tax (benefit)		$344,186	($553,229)	($328,459)	($193,187)	($192,111)	($93,426)	$8,078	$8,735	$9,252	$9,916
Tax Depreciation - Fed'l	$27,436,837	$5,058,667	$8,131,167	$4,949,976	$3,035,022	$3,018,093	$1,580,293	$147,994	$142,973	$142,287	$142,137
Taxable Income - Fed'l		$6,270,648	($7,209,350)	($4,258,687)	($2,482,979)	($2,469,147)	($1,180,911)	$152,337	$161,709	$169,680	$180,024
Federal Income Tax (benefit)		$2,194,727	($2,523,272)	($1,490,541)	($869,043)	($864,201)	($413,319)	$53,318	$56,598	$59,388	$63,009
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$9,683,589									
State Tax Credit		$11,297,521									
Net Taxes (due)		**$18,442,197**	**$3,076,502**	**$1,819,000**	**$1,062,230**	**$1,056,312**	**$506,745**	**($61,396)**	**($65,333)**	**($68,640)**	**($72,925)**
Net Cash Flow	***(20,981,110)***	***18,597,351***	***3,204,389***	***1,919,465***	***1,135,108***	***1,101,433***	***472,932***	***(123,335)***	***(155,595)***	***(187,432)***	***(220,460)***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(20,981,110)	-$2,012,288	-$2,023,298	-$2,034,587	-$2,046,160	-$2,058,025	-$2,121,185	-$2,133,656	-$2,146,441	-$2,159,549	-$2,172,987
Tax Benefits		$19,285,543	$3,913,522	$2,649,743	$1,886,742	$1,874,641	$1,318,936	$744,704	$734,721	$725,413	$715,173
Subtotal Cost	(20,981,110)	17,273,256	1,890,224	615,157	(159,417)	(183,384)	(802,249)	(1,388,952)	(1,411,720)	(1,434,136)	(1,457,813)
Real Discount Rate	11%										
NPV of EBIT	(10,066,541)										
Effective tax rate	38.91%										
NPV of output	76,588										
Real Level Cost*	131										
Level Cost Grossed for Taxes	215	Adjusted for end of year payment level									
Cost in year 1	**$ 215.15**	**This should match cell C25**									
Diffference from B&V	**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	8.33%	514,483	2,057,933	2,057,933	-	2,057,933	9,475.6	2,067,409	1,033,704
2	8.33%	514,483	2,057,933	4,115,867	2,067,409	2,057,933	28,514.1	4,153,856	3,110,633
3	8.33%	514,483	2,057,933	6,173,800	4,153,856	2,057,933	47,728.0	6,259,518	5,206,687
4	8.33%	514,483	2,057,933	8,231,733	6,259,518	2,057,933	67,118.7	8,384,570	7,322,044
5	8.33%	514,483	2,057,933	10,289,667	8,384,570	2,057,933	86,688.1	10,529,191	9,456,880
6	8.33%	514,483	2,057,933	12,347,600	10,529,191	2,057,933	106,437.6	12,693,562	11,611,377
7	8.33%	514,483	2,057,933	14,405,533	12,693,562	2,057,933	126,369.0	14,877,865	13,785,713
8	8.33%	514,483	2,057,933	16,463,467	14,877,865	2,057,933	146,484.0	17,082,282	15,980,073
9	8.33%	514,483	2,057,933	18,521,400	17,082,282	2,057,933	166,784.2	19,306,999	18,194,641
10	8.33%	514,483	2,057,933	20,579,333	19,306,999	2,057,933	187,271.3	21,552,204	20,429,602
	100.0%	6,173,800	24,695,200				1,409,631		
Deferred Interest as % of Total Capital Cost							4.566%		

Loan Amount excluding Capitalized Interest	24,695,200
Equity funding during construction	6,173,800
Capitalized Interest	1,409,631
Total capital cost including interest during construction	32,278,631

Cost of Generation

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	32,278,631
Fed'l depreciation basis	$	27,436,837
State depreciation basis	$	32,278,631
	0	
	0	-9023611.412
	5	-6813908.213
slope		41940.63997

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	9,343.4	9,273.4	9,203.8	9,134.8	9,066.3	8,998.3	8,930.8	8,863.8	8,797.3	8,731.4
Cost of Generation ($/mWh)	$215.15	$215.15	$215.15	$215.15	$215.15	$215.15	$215.15	$215.15	$215.15	$215.15
Operating Revenues	**$2,010,261**	**$1,995,184**	**$1,980,220**	**$1,965,368**	**$1,950,628**	**$1,935,998**	**$1,921,478**	**$1,907,067**	**$1,892,764**	**$1,878,569**
Fixed O&M	$320,021	$328,022	$336,222	$344,628	$353,243	$362,075	$371,126	$380,405	$389,915	$399,663
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$247,916	$254,114	$260,467	$266,979	$273,653	$280,494	$287,507	$294,695	$302,062	$309,613
Land Cost	$498,822	$498,822	$498,822	$498,822	$498,822	$777,149	$777,149	$777,149	$777,149	$777,149
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$10,051	$9,976	$9,901	$9,827	$9,753	$9,680	$9,607	$9,535	$9,464	$9,393
Operating Expenses	**$1,076,811**	**$1,090,934**	**$1,105,413**	**$1,120,256**	**$1,135,472**	**$1,429,398**	**$1,445,389**	**$1,461,783**	**$1,478,589**	**$1,495,818**
Interest Payment	$714,826	$667,777	$616,492	$560,592	$499,661	$433,246	$360,854	$281,947	$195,937	$102,187
Principal Payment	$522,777	$569,827	$621,112	$677,012	$737,943	$804,357	$876,750	$955,657	$1,041,666	$1,135,416
Debt Service	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**	**$1,237,604**
Tax Depreciation - State	$167,397	$167,219	$167,397	$167,219	$167,397	$119,608	$72,014	$71,997	$72,014	$71,997
Taxable Income - State	$51,227	$89,254	$90,918	$117,301	$148,098	($46,254)	$43,221	$91,340	$146,224	$208,566
State Income Tax (benefit)	$3,081	$4,166	$5,469	$7,056	$8,908	($2,782)	$2,600	$5,494	$8,795	$12,545
Tax Depreciation - Fed'l	$142,287	$142,137	$142,287	$142,137	$142,287	$101,667	$61,212	$61,198	$61,212	$61,198
Taxable Income - Fed'l	$73,255	$90,171	$110,559	$135,329	$164,300	($25,531)	$51,424	$96,646	$148,231	$206,820
Federal Income Tax (benefit)	$25,639	$31,560	$38,696	$47,365	$57,505	($8,936)	$17,998	$33,826	$51,881	$72,387
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($28,720)**	**($35,726)**	**($44,164)**	**($54,421)**	**($66,413)**	**$11,718**	**($20,598)**	**($39,320)**	**($60,676)**	**($84,932)**
Net Cash Flow	***(332,874)***	***(369,079)***	***(406,961)***	***(446,911)***	***(488,860)***	***(719,285)***	***(782,113)***	***(831,639)***	***(884,105)***	***(939,785)***
IRR										

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue.

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0 000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5 9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	-$2,314,415	-$2,328,538	-$2,343,016	-$2,357,859	-$2,373,076	-$2,667,001	-$2,682,993	-$2,699,387	-$2,716,193	-$2,733,421
Tax Benefits	$753,467	$740,596	$726,334	$710,299	$692,572	$765,010	$727,044	$702,715	$675,794	$646,014
Subtotal Cost	(1,560,947)	(1,587,942)	(1,616,682)	(1,647,560)	(1,680,504)	(1,901,991)	(1,955,949)	(1,996,672)	(2,040,399)	(2,087,407)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output -										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	5
Capital Cost before construction financing ($/kW)	$7,352
Capital Cost incl construction financing ($/kW)	$7,687
Fixed O&M ($/kW)	$80
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$128,070
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	23%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	12
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	35.0%	$ 500,000
No. of Systems (WTGs)	35	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$224.44

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0
Cost of Generation ($/mWh)		$224.44	$224.44	$224.44	$224.44	$224.44	$224.44	$224.44	$224.44	$224.44	$224.44
Operating Revenues		**$2,260,977**	**$2,260,977**	**$2,260,977**	**$2,260,977**	**$2,260,977**	**$2,260,977**	**$2,260,977**	**$2,260,977**	**$2,260,977**	**$2,260,977**
Fixed O&M		$400,000	$410,000	$420,250	$430,756	$441,525	$452,563	$463,877	$475,474	$487,361	$499,545
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$230,618	$236,384	$242,293	$248,350	$254,559	$260,923	$267,446	$274,132	$280,986	$288,010
Land Cost		$128,070	$128,070	$128,070	$128,070	$128,070	$148,468	$148,468	$148,468	$148,468	$148,468
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$11,305	$11,305	$11,305	$11,305	$11,305	$11,305	$11,305	$11,305	$11,305	$11,305
Operating Expenses		**$769,993**	**$785,758**	**$801,918**	**$818,482**	**$835,459**	**$873,260**	**$891,097**	**$909,380**	**$928,120**	**$947,329**
Interest Payment		$1,210,745	$1,187,079	$1,161,283	$1,133,166	$1,102,518	$1,069,112	$1,032,699	$993,009	$949,747	$902,592
Principal Payment	$13,452,720	$262,953	$286,619	$312,415	$340,532	$371,180	$404,586	$440,999	$480,689	$523,951	$571,106
Debt Service		**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**
Tax Depreciation - State	$38,436,343	$7,086,701	$11,390,975	$6,934,435	$4,251,771	$4,228,055	$2,213,837	$207,326	$200,292	$199,331	$199,119
Taxable Income - State		$6,646,259	($11,102,836)	($6,636,659)	($3,942,441)	($3,905,056)	($1,895,232)	$129,856	$158,296	$183,779	$211,937
State Income Tax (benefit)		$399,772	($667,836)	($399,195)	($237,138)	($234,889)	($113,998)	$7,811	$9,522	$11,054	$12,748
Tax Depreciation - Fed1	$32,670,892	$6,023,696	$9,682,329	$5,894,270	$3,614,005	$3,593,847	$1,881,762	$176,227	$170,248	$169,431	$169,252
Taxable Income - Fed1		$7,309,491	($8,726,354)	($5,197,299)	($3,067,538)	($3,035,958)	($1,449,158)	$153,144	$178,819	$202,624	$229,057
Federal Income Tax (benefit)		$2,558,322	($3,054,224)	($1,819,055)	($1,073,638)	($1,062,585)	($507,205)	$53,600	$62,586	$70,919	$80,170
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$11,530,903									
State Tax Credit		$13,452,720									
Net Taxes (due)		**$22,025,529**	**$3,722,059**	**$2,218,250**	**$1,310,776**	**$1,297,474**	**$621,203**	**($61,411)**	**($72,108)**	**($81,973)**	**($92,918)**
Net Cash Flow	***(24,983,623)***	***22,042,815***	***3,723,580***	***2,203,611***	***1,279,573***	***1,249,294***	***535,223***	***(165,229)***	***(194,209)***	***(222,814)***	***(252,968)***

IRR ***11%***

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(24,983,623)	-$2,243,691	-$2,259,456	-$2,275,616	-$2,292,180	-$2,309,157	-$2,346,958	-$2,364,795	-$2,383,078	-$2,401,818	-$2,421,027
Tax Benefits		$22,905,269	$4,601,800	$3,097,990	$2,190,517	$2,177,215	$1,500,944	$818,329	$807,633	$797,768	$786,822
Subtotal Cost	(24,983,623)	20,661,578	2,342,343	822,374	(101,663)	(131,942)	(846,014)	(1,546,465)	(1,575,445)	(1,604,050)	(1,634,204)

Real Discount Rate	11%	
NPV of EBIT	(10,999,240)	
Effective tax rate	38.91%	
NPV of output	80,223	
Real Level Cost	137	
Level Cost Grossed for Taxes	224	Adjusted for end of year payment level
Cost in year 1	$ 224.44	**This should match cell C25**
Difference from B&V	0.00%	**This should be zero**

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	8.33%	612,630	2,450,520	2,450,520	-	2,450,520	11,283.3	2,461,803	1,230,902
2	8.33%	612,630	2,450,520	4,901,040	2,461,803	2,450,520	33,953.7	4,946,277	3,704,040
3	8.33%	612,630	2,450,520	7,351,560	4,946,277	2,450,520	56,832.9	7,453,630	6,199,953
4	8.33%	612,630	2,450,520	9,802,080	7,453,630	2,450,520	79,922.8	9,984,073	8,718,851
5	8.33%	612,630	2,450,520	12,252,600	9,984,073	2,450,520	103,225.3	12,537,818	11,260,945
6	8.33%	612,630	2,450,520	14,703,120	12,537,818	2,450,520	126,742.5	15,115,080	13,826,449
7	8.33%	612,630	2,450,520	17,153,640	15,115,080	2,450,520	150,476.1	17,716,077	16,415,579
8	8.33%	612,630	2,450,520	19,604,160	17,716,077	2,450,520	174,428.4	20,341,025	19,028,551
9	8.33%	612,630	2,450,520	22,054,680	20,341,025	2,450,520	198,601.2	22,990,146	21,665,586
10	8.33%	612,630	2,450,520	24,505,200	22,990,146	2,450,520	222,996.6	25,663,663	24,326,904
	100.0%	7,351,560	29,406,240				1,678,543		
Deferred Interest as % of Total Capital Cost							4.566%		

Loan Amount excluding Capitalized Interest	29,406,240
Equity funding during construction	7,351,560
Capitalized interest	1,678,543
Total capital cost including interest during construction	38,436,343

Cost of Generation

All inputs are in blue.

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	38,436,343
Fed'l depreciation basis	$	32,670,892
State depreciation basis	$	38,436,343
	0	
	0	-9859679.125
	5	-9640025.404
slope		43930.74431

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0	10,074.0
Cost of Generation ($/mWh)	$224.44	$224.44	$224.44	$224.44	$224.44	$224.44	$224.44	$224.44	$224.44	$224.44
Operating Revenues	**$2,260,977**	**$2,260,977**	**$2,260,977**	**$2,260,977**	**$2,260,977**	**$2,260,977**	**$2,260,977**	**$2,260,977**	**$2,260,977**	**$2,260,977**
Fixed O&M	$512,034	$524,835	$537,956	$551,404	$565,190	$579,319	$593,802	$608,647	$623,863	$639,460
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$295,211	$302,591	$310,156	$317,910	$325,857	$334,004	$342,354	$350,913	$359,685	$368,678
Land Cost	$199,529	$199,529	$199,529	$199,529	$199,529	$310,860	$310,860	$310,860	$310,860	$310,860
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$11,305	$11,305	$11,305	$11,305	$11,305	$11,305	$11,305	$11,305	$11,305	$11,305
Operating Expenses	**$1,018,078**	**$1,038,259**	**$1,058,945**	**$1,080,148**	**$1,101,881**	**$1,235,487**	**$1,258,320**	**$1,281,724**	**$1,305,713**	**$1,330,302**
Interest Payment	$851,192	$795,167	$734,099	$667,535	$594,980	$515,895	$429,693	$335,733	$233,316	$121,681
Principal Payment	$622,506	$678,532	$739,599	$806,163	$878,718	$957,803	$1,044,005	$1,137,965	$1,240,382	$1,352,017
Debt Service	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**	**$1,473,698**
Tax Depreciation - State	$199,331	$199,119	$199,331	$199,119	$199,331	$142,426	$85,751	$85,732	$85,751	$85,732
Taxable Income - State	$192,376	$228,432	$268,603	$314,175	$364,786	$367,168	$487,212	$557,788	$636,196	$723,261
State Income Tax (benefit)	$11,571	$13,740	$16,156	$18,898	$21,942	$22,085	$29,306	$33,551	$38,267	$43,504
Tax Depreciation - Fed1	$169,431	$169,252	$169,431	$169,252	$169,431	$121,062	$72,889	$72,872	$72,889	$72,872
Taxable Income - Fed1	$210,704	$244,560	$282,346	$325,145	$372,743	$366,447	$470,769	$537,097	$610,792	$692,617
Federal Income Tax (benefit)	$73,746	$85,596	$98,821	$113,801	$130,460	$128,256	$164,769	$187,984	$213,777	$242,416
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($85,318)**	**($99,336)**	**($114,977)**	**($132,699)**	**($152,402)**	**($150,342)**	**($194,075)**	**($221,535)**	**($252,044)**	**($285,920)**
Net Cash Flow	***(316,117)***	***(350,316)***	***(386,643)***	***(425,567)***	***(467,004)***	***(598,550)***	***(665,116)***	***(715,980)***	***(770,479)***	***(828,943)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	-$2,491,776	-$2,511,957	-$2,532,643	-$2,553,846	-$2,575,579	-$2,709,185	-$2,732,019	-$2,755,422	-$2,779,411	-$2,804,000
Tax Benefits	$794,423	$780,405	$764,763	$747,042	$727,339	$729,399	$685,666	$658,206	$627,696	$593,820
Subtotal Cost	(1,697,354)	(1,731,553)	(1,767,880)	(1,806,804)	(1,848,240)	(1,979,787)	(2,046,353)	(2,097,217)	(2,151,715)	(2,210,180)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

[redacted]

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	5
Capital Cost before construction financing ($/kW)	$5,820
Capital Cost incl construction financing ($/kW)	$6,086
Fixed O&M ($/kW)	$75
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$384,210
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	19%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	12
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	35.0%	$ 500,000
No. of Systems (WTGs)	1	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$405.58

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0
Cost of Generation ($/mWh)		$405.58	$405.58	$405.58	$405.58	$405.58	$405.58	$405.58	$405.58	$405.58	$405.58
Operating Revenues		**$3,375,206**	**$3,375,206**	**$3,375,206**	**$3,375,206**	**$3,375,206**	**$3,375,206**	**$3,375,206**	**$3,375,206**	**$3,375,206**	**$3,375,206**
Fixed O&M		$375,000	$384,375	$393,984	$403,834	$413,930	$424,278	$434,885	$445,757	$456,901	$468,324
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$182,588	$187,153	$191,831	$196,627	$201,543	$206,581	$211,746	$217,040	$222,466	$228,027
Land Cost		$384,210	$384,210	$384,210	$384,210	$384,210	$445,405	$445,405	$445,405	$445,405	$445,405
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$16,876	$16,876	$16,876	$16,876	$16,876	$16,876	$16,876	$16,876	$16,876	$16,876
Operating Expenses		**$958,674**	**$972,614**	**$986,902**	**$1,001,547**	**$1,016,559**	**$1,093,140**	**$1,108,912**	**$1,125,078**	**$1,141,647**	**$1,158,632**
Interest Payment		$958,587	$939,850	$919,426	$897,165	$872,900	$846,451	$817,622	$786,198	$751,946	$714,612
Principal Payment	$10,650,961	$208,189	$226,926	$247,349	$269,610	$293,875	$320,324	$349,153	$380,577	$414,829	$452,164
Debt Service		**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**
Tax Depreciation - State	$30,431,318	$5,610,774	$9,018,610	$5,490,221	$3,366,267	$3,347,491	$1,752,768	$164,147	$158,578	$157,817	$157,649
Taxable Income - State		($3,652,829)	($7,555,867)	($4,021,343)	($1,889,773)	($1,861,743)	($317,153)	$1,284,526	$1,305,353	$1,323,796	$1,344,313
State Income Tax (benefit)		($219,718)	($454,485)	($241,884)	($113,670)	($111,984)	($19,077)	$77,264	$78,517	$79,626	$80,860
Tax Depreciation - Fed1	$25,866,620	$4,769,158	$7,665,819	$4,666,687	$2,861,327	$2,845,367	$1,489,853	$139,525	$134,791	$134,144	$134,002
Taxable Income - Fed1		($2,591,495)	($5,748,590)	($2,955,926)	($1,271,163)	($1,247,636)	($35,161)	$1,231,884	$1,250,622	$1,267,842	$1,287,100
Federal Income Tax (benefit)		($907,023)	($2,012,007)	($1,034,574)	($444,907)	($436,673)	($12,306)	$431,159	$437,718	$443,745	$450,485
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$9,129,395									
State Tax Credit		$500,000									
Net Taxes (due)		**$10,756,136**	**$2,466,492**	**$1,276,458**	**$558,577**	**$548,656**	**$31,383**	**($508,423)**	**($516,235)**	**($523,371)**	**($531,346)**
Net Cash Flow	***(19,780,357)***	***12,005,893***	***3,702,309***	***2,497,987***	***1,765,460***	***1,740,528***	***1,146,674***	***591,095***	***567,118***	***543,412***	***518,453***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue.

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(19,780,357)	-$2,125,449	-$2,139,389	-$2,153,677	-$2,168,322	-$2,183,334	-$2,259,916	-$2,275,687	-$2,291,853	-$2,308,423	-$2,325,407
Tax Benefits		$12,069,420	$3,779,776	$2,589,742	$1,871,861	$1,861,941	$1,344,667	$804,861	$797,049	$789,913	$781,939
Subtotal Cost	(19,780,357)	9,943,971	1,640,387	436,065	(296,461)	(321,393)	(915,248)	(1,470,826)	(1,494,803)	(1,518,509)	(1,543,468)
Real Discount Rate	11%										
NPV of EBIT	(16,419,759)										
Effective tax rate	38.91%										
NPV of output	66,271										
Real Level Cost	248										
Level Cost Grossed for Taxes	406	Adjusted for end of year payment level									
Cost in year 1	**$ 405.58**	**This should match cell C25**									
Diffference from B&V	**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	8.33%	485,039	1,940,157	1,940,157	-	1,940,157	8,933.3	1,949,091	974,545
2	8.33%	485,039	1,940,157	3,880,315	1,949,091	1,940,157	26,882.3	3,916,130	2,932,610
3	8.33%	485,039	1,940,157	5,820,472	3,916,130	1,940,157	44,996.5	5,901,284	4,908,707
4	8.33%	485,039	1,940,157	7,760,629	5,901,284	1,940,157	63,277.5	7,904,719	6,903,002
5	8.33%	485,039	1,940,157	9,700,787	7,904,719	1,940,157	81,726.9	9,926,603	8,915,661
6	8.33%	485,039	1,940,157	11,640,944	9,926,603	1,940,157	100,346.2	11,967,107	10,946,855
7	8.33%	485,039	1,940,157	13,581,101	11,967,107	1,940,157	119,136.9	14,026,401	12,996,754
8	8.33%	485,039	1,940,157	15,521,259	14,026,401	1,940,157	138,100.7	16,104,659	15,065,530
9	8.33%	485,039	1,940,157	17,461,416	16,104,659	1,940,157	157,239.1	18,202,055	17,153,357
10	8.33%	485,039	1,940,157	19,401,573	18,202,055	1,940,157	176,553.8	20,318,766	19,260,411
	100.0%	5,820,472	23,281,888				1,328,958		
Deferred Interest as % of Total Capital Cost							4.566%		
Loan Amount excluding Capitalized Interest			23,281,888						
Equity funding during construction			5,820,472						
Capitalized interest			1,328,958						
Total capital cost including interest during construction			30,431,318						

Cost of Generation

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	30,431,318
Fed'l depreciation basis	$	25,866,620
State depreciation basis	$	30,431,318
	0	
	0	-14718613.12
	5	-14537160.05
slope		36290.61486

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0	8,322.0
Cost of Generation ($/mWh)	$405.58	$405.58	$405.58	$405.58	$405.58	$405.58	$405.58	$405.58	$405.58	$405.58
Operating Revenues	**$3,375,206**	**$3,375,206**	**$3,375,206**	**$3,375,206**	**$3,375,206**	**$3,375,206**	**$3,375,206**	**$3,375,206**	**$3,375,206**	**$3,375,206**
Fixed O&M	$480,032	$492,032	$504,333	$516,942	$529,865	$543,112	$556,690	$570,607	$584,872	$599,494
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$233,728	$239,571	$245,560	$251,699	$257,992	$264,442	$271,053	$277,829	$284,775	$291,894
Land Cost	$598,587	$598,587	$598,587	$598,587	$598,587	$932,579	$932,579	$932,579	$932,579	$932,579
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$16,876	$16,876	$16,876	$16,876	$16,876	$16,876	$16,876	$16,876	$16,876	$16,876
Operating Expenses	**$1,329,222**	**$1,347,066**	**$1,365,356**	**$1,384,104**	**$1,403,320**	**$1,757,008**	**$1,777,197**	**$1,797,890**	**$1,819,101**	**$1,840,843**
Interest Payment	$673,917	$629,560	$581,210	$528,509	$471,065	$408,451	$340,202	$265,811	$184,724	$96,339
Principal Payment	$492,858	$537,216	$585,565	$638,266	$695,710	$758,324	$826,573	$900,965	$982,051	$1,070,436
Debt Service	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**	**$1,166,775**
Tax Depreciation - State	$157,817	$157,649	$157,817	$157,649	$157,817	$112,763	$67,892	$67,877	$67,892	$67,877
Taxable Income - State	$1,214,250	$1,240,931	$1,270,823	$1,304,943	$1,343,004	$1,096,983	$1,189,914	$1,243,628	$1,303,488	$1,370,147
State Income Tax (benefit)	$73,037	$74,642	$76,440	$78,492	$80,782	$65,984	$71,573	$74,804	$78,405	$82,414
Tax Depreciation - Fed'l	$134,144	$134,002	$134,144	$134,002	$134,144	$95,849	$57,708	$57,695	$57,708	$57,695
Taxable Income - Fed'l	$1,164,885	$1,189,936	$1,218,055	$1,250,099	$1,285,895	$1,047,914	$1,128,525	$1,179,005	$1,235,267	$1,297,914
Federal Income Tax (benefit)	$407,710	$416,478	$426,319	$437,534	$450,063	$366,770	$394,984	$412,652	$432,344	$454,270
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($480,747)**	**($491,120)**	**($502,759)**	**($516,027)**	**($530,845)**	**($432,753)**	**($466,557)**	**($487,456)**	**($510,748)**	**($536,684)**
Net Cash Flow	***398,461***	***370,245***	***340,315***	***308,300***	***274,266***	***18,669***	***(35,323)***	***(76,916)***	***(121,419)***	***(169,096)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0 000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	-$2,495,998	-$2,513,842	-$2,532,132	-$2,550,879	-$2,570,095	-$2,923,783	-$2,943,972	-$2,964,666	-$2,985,877	-$3,007,618
Tax Benefits	$832,537	$822,165	$810,525	$797,257	$782,439	$880,531	$846,727	$825,828	$802,536	$776,600
Subtotal Cost	(1,663,460)	(1,691,677)	(1,721,607)	(1,753,622)	(1,787,656)	(2,043,253)	(2,097,245)	(2,138,838)	(2,183,341)	(2,231,018)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Difference from B&V										

[redacted]

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	1
Capital Cost before construction financing ($/kW)	$8,365
Capital Cost incl construction financing ($/kW)	$8,553
Fixed O&M ($/kW)	$50
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$64,035
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	22%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	6
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	35.0%	$ 500,000
No. of Systems (WTGs)	5	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$303.59

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		1,927.2	1,912.7	1,898.4	1,884.2	1,870.0	1,856.0	1,842.1	1,828.3	1,814.6	1,800.9
Cost of Generation ($/mWh)		$303.59	$303.59	$303.59	$303.59	$303.59	$303.59	$303.59	$303.59	$303.59	$303.59
Operating Revenues		**$585,073**	**$580,685**	**$576,330**	**$572,007**	**$567,717**	**$563,459**	**$559,233**	**$555,039**	**$550,876**	**$546,745**
Fixed O&M		$50,000	$51,250	$52,531	$53,845	$55,191	$56,570	$57,985	$59,434	$60,920	$62,443
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$51,318	$52,601	$53,916	$55,264	$56,645	$58,061	$59,513	$61,001	$62,526	$64,089
Land Cost		$64,035	$64,035	$64,035	$64,035	$64,035	$74,234	$74,234	$74,234	$74,234	$74,234
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$2,925	$2,903	$2,882	$2,860	$2,839	$2,817	$2,796	$2,775	$2,754	$2,734
Operating Expenses		**$168,278**	**$170,789**	**$173,364**	**$176,003**	**$178,709**	**$191,683**	**$194,528**	**$197,444**	**$200,434**	**$203,500**
Interest Payment		$269,418	$264,152	$258,412	$252,155	$245,335	$237,901	$229,799	$220,967	$211,340	$200,847
Principal Payment	$2,993,533	$58,513	$63,779	$69,519	$75,776	$82,596	$90,030	$98,132	$106,964	$116,591	$127,084
Debt Service		**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**
Tax Depreciation - State	$8,552,950	$1,576,950	$2,534,748	$1,543,068	$946,115	$940,837	$492,629	$46,135	$44,569	$44,356	$44,309
Taxable Income - State		$1,070,427	($2,389,004)	($1,398,513)	($802,265)	($797,165)	($358,754)	$88,772	$92,059	$94,746	$98,089
State Income Tax (benefit)		$64,386	($143,699)	($84,121)	($48,256)	($47,949)	($21,579)	$5,340	$5,537	$5,699	$5,900
Tax Depreciation - Fed'l	$7,270,008	$1,340,408	$2,154,536	$1,311,608	$804,197	$799,712	$418,734	$39,214	$37,884	$37,702	$37,662
Taxable Income - Fed'l		$1,242,583	($1,865,093)	($1,082,932)	($612,092)	($608,090)	($263,280)	$90,353	$93,207	$95,701	$98,836
Federal Income Tax (benefit)		$434,904	($652,783)	($379,026)	($214,232)	($212,831)	($92,148)	$31,623	$32,622	$33,495	$34,592
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$2,565,885									
State Tax Credit		$2,500,000									
Net Taxes (due)		**$4,566,595**	**$796,481**	**$463,147**	**$262,488**	**$260,781**	**$113,727**	**($36,963)**	**($38,160)**	**($39,194)**	**($40,493)**
Net Cash Flow	***(5,559,418)***	***4,655,459***	***878,446***	***538,182***	***330,562***	***321,858***	***157,572***	***(188)***	***(8,496)***	***(16,683)***	***(25,179)***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue.

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost	(5,559,418)	-$496,209	-$498,720	-$501,294	-$503,934	-$506,640	-$519,614	-$522,459	-$525,375	-$528,365	-$531,431
Tax Benefits		$4,794,245	$1,022,424	$687,395	$485,055	$481,678	$332,968	$180,633	$177,805	$175,150	$172,244
Subtotal Cost	(5,559,418)	4,298,036	523,704	186,101	(18,879)	(24,962)	(186,646)	(341,826)	(347,570)	(353,215)	(359,186)
Real Discount Rate	11%										
NPV of EBIT	(2,717,334)										
Effective tax rate	38.91%										
NPV of output	14,652										
Real Level Cost	185										
Level Cost Grossed for Taxes	304	Adjusted for end of year payment level									
Cost in year 1	**$ 303.59**	**This should match cell C25**									
Diffference from B&V	**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest 11.0%	End Balance	Avg. Balance
1	16.67%	278,848	1,115,392	1,115,392	-	1,115,392	5,135.8	1,120,528	560,264
2	16.67%	278,848	1,115,392	2,230,784	1,120,528	1,115,392	15,454.6	2,251,374	1,685,951
3	16.67%	278,848	1,115,392	3,346,176	2,251,374	1,115,392	25,868.4	3,392,635	2,822,004
4	16.67%	278,848	1,115,392	4,461,568	3,392,635	1,115,392	36,378.1	4,544,405	3,968,520
5	16.67%	278,848	1,115,392	5,576,960	4,544,405	1,115,392	46,984.6	5,706,781	5,125,593
6	16.67%	278,848	1,115,392	6,692,352	5,706,781	1,115,392	57,688.8	6,879,862	6,293,322
7	0.00%								
8	0.00%								
9	0.00%								
10	0.00%								
	100.0%	1,673,088	6,692,352				187,510		
Deferred Interest as % of Total Capital Cost							2.241%		

Loan Amount excluding Capitalized Interest	6,692,352
Equity funding during construction	1,673,088
Capitalized interest	187,510
Total capital cost including interest during construction	8,552,950

Cost of Generation

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	8,552,950
Fed'l depreciation basis	$	7,270,008
State depreciation basis	$	8,552,950
	0	
	0	-2435808.111
	5	-2395690.977
slope		8023.426776

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	1,787.4	1,774.0	1,760.7	1,747.5	1,734.4	1,721.4	1,708.5	1,695.7	1,683.0	1,670.3
Cost of Generation ($/mWh)	$303.59	$303.59	$303.59	$303.59	$303.59	$303.59	$303.59	$303.59	$303.59	$303.59
Operating Revenues	**$542,644**	**$538,574**	**$534,535**	**$530,526**	**$526,547**	**$522,598**	**$518,678**	**$514,788**	**$510,927**	**$507,096**
Fixed O&M	$64,004	$65,604	$67,244	$68,926	$70,649	$72,415	$74,225	$76,081	$77,983	$79,933
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$65,691	$67,333	$69,017	$70,742	$72,511	$74,323	$76,181	$78,086	$80,038	$82,039
Land Cost	$99,764	$99,764	$99,764	$99,764	$99,764	$155,430	$155,430	$155,430	$155,430	$155,430
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$2,713	$2,693	$2,673	$2,653	$2,633	$2,613	$2,593	$2,574	$2,555	$2,535
Operating Expenses	**$232,173**	**$235,395**	**$238,698**	**$242,085**	**$245,556**	**$304,781**	**$308,430**	**$312,171**	**$316,005**	**$319,937**
Interest Payment	$189,409	$176,942	$163,353	$148,541	$132,396	$114,798	$95,616	$74,708	$51,918	$27,077
Principal Payment	$138,522	$150,989	$164,577	$179,389	$195,535	$213,133	$232,315	$253,223	$276,013	$300,854
Debt Service	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**	**$327,931**
Tax Depreciation - State	$44,356	$44,309	$44,356	$44,309	$44,356	$31,693	$19,082	$19,077	$19,082	$19,077
Taxable Income - State	$76,706	$81,928	$88,128	$95,591	$104,239	$71,326	$95,551	$108,832	$123,922	$141,004
State Income Tax (benefit)	$4,614	$4,928	$5,301	$5,750	$6,270	$4,290	$5,747	$6,546	$7,454	$8,481
Tax Depreciation - Fed'l	$37,702	$37,662	$37,702	$37,662	$37,702	$26,939	$16,219	$16,216	$16,219	$16,216
Taxable Income - Fed'l	$78,746	$83,647	$89,480	$96,488	$104,622	$71,789	$92,665	$105,148	$119,331	$135,385
Federal Income Tax (benefit)	$27,561	$29,276	$31,318	$33,771	$36,618	$25,126	$32,433	$36,802	$41,766	$47,385
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($32,175)**	**($34,204)**	**($36,619)**	**($39,521)**	**($42,888)**	**($29,417)**	**($38,180)**	**($43,348)**	**($49,220)**	**($55,866)**
Net Cash Flow	***(49,635)***	***(58,956)***	***(68,713)***	***(79,010)***	***(89,828)***	***(139,530)***	***(155,863)***	***(168,661)***	***(182,229)***	***(196,638)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0 000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0 000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	-$560,104	-$563,326	-$566,629	-$570,016	-$573,487	-$632,712	-$636,361	-$640,101	-$643,936	-$647,868
Tax Benefits	$178,967	$175,354	$171,367	$166,906	$161,991	$173,925	$163,636	$156,955	$149,581	$141,444
Subtotal Cost	(381,137)	(387,972)	(395,262)	(403,110)	(411,497)	(458,787)	(472,725)	(483,147)	(494,355)	(506,424)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output –										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	1
Capital Cost before construction financing ($/kW)	$8,562
Capital Cost incl construction financing ($/kW)	$8,754
Fixed O&M ($/kW)	$80
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$25,614
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	21%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Period (months)	6
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	35.0%	$ 500,000
No. of Systems (WTGs)	5	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$305.16

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6
Cost of Generation ($/mWh)		$305.16	$305.16	$305.16	$305.16	$305.16	$305.16	$305.16	$305.16	$305.16	$305.16
Operating Revenues		**$561,381**	**$561,381**	**$561,381**	**$561,381**	**$561,381**	**$561,381**	**$561,381**	**$561,381**	**$561,381**	**$561,381**
Fixed O&M		$80,000	$82,000	$84,050	$86,151	$88,305	$90,513	$92,775	$95,095	$97,472	$99,909
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$52,524	$53,837	$55,183	$56,563	$57,977	$59,426	$60,912	$62,435	$63,996	$65,596
Land Cost		$25,614	$25,614	$25,614	$25,614	$25,614	$29,694	$29,694	$29,694	$29,694	$29,694
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$2,807	$2,807	$2,807	$2,807	$2,807	$2,807	$2,807	$2,807	$2,807	$2,807
Operating Expenses		**$160,945**	**$164,258**	**$167,654**	**$171,135**	**$174,703**	**$182,440**	**$186,188**	**$190,030**	**$193,969**	**$198,005**
Interest Payment		$275,752	$270,362	$264,487	$258,083	$251,103	$243,495	$235,202	$226,162	$216,309	$205,569
Principal Payment	$3,063,916	$59,889	$65,279	$71,154	$77,558	$84,538	$92,146	$100,439	$109,479	$119,332	$130,072
Debt Service		**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**
Tax Depreciation - State	$8,754,045	$1,614,027	$2,594,344	$1,579,348	$968,359	$962,958	$504,211	$47,219	$45,617	$45,398	$45,350
Taxable Income - State		$1,010,657	($2,467,584)	($1,450,108)	($836,196)	($827,383)	($368,764)	$92,772	$99,572	$105,705	$112,457
State Income Tax (benefit)		$60,791	($148,425)	($87,224)	($50,297)	($49,767)	($22,181)	$5,580	$5,989	$6,358	$6,764
Tax Depreciation - Fed'l	$7,440,938	$1,371,923	$2,205,193	$1,342,446	$823,105	$818,514	$428,579	$40,136	$38,775	$38,589	$38,548
Taxable Income - Fed'l		$1,191,970	($1,930,007)	($1,125,982)	($640,645)	($633,172)	($270,951)	$94,275	$100,425	$106,157	$112,495
Federal Income Tax (benefit)		$417,189	($675,502)	($394,094)	($224,226)	($221,610)	($94,833)	$32,996	$35,149	$37,155	$39,373
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$2,626,213									
State Tax Credit		$2,500,000									
Net Taxes (due)		**$4,648,233**	**$823,928**	**$481,318**	**$274,523**	**$271,377**	**$117,014**	**($38,577)**	**($41,138)**	**($43,513)**	**($46,138)**
Net Cash Flow	***(5,690,129)***	***4,713,028***	***885,410***	***539,404***	***329,128***	***322,415***	***160,315***	***976***	***(5,428)***	***(11,741)***	***(18,402)***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0.0000%	0.0000%
100.0000%	7	14.2900%	24.4900%	17.4900%	12.4900%	8.9300%	8.9200%	8.9300%	4.4600%	0.0000%	0.0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost		(5,690,129)	-$496,586	-$499,899	-$503,295	-$506,776	-$510,344	-$518,081	-$521,829	-$525,671	-$529,610	-$533,646
Tax Benefits			$4,866,665	$1,042,360	$699,750	$492,955	$489,809	$335,446	$179,856	$177,294	$174,919	$172,295
Subtotal Cost		(5,690,129)	4,370,079	542,460	196,454	(13,821)	(20,535)	(182,635)	(341,974)	(348,377)	(354,691)	(361,352)
Real Discount Rate		11%										
NPV of EBIT		(2,731,018)										
Effective tax rate		38.91%										
NPV of output		14,649										
Real Level Cost		186										
Level Cost Grossed for Taxes		305	Adjusted for end of year payment level									
Cost in year 1	$	305.16	This should match cell C25									
Diffference from B&V		0.00%	This should be zero									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan				
					Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	16.67%	285,404	1,141,617	1,141,617	-	1,141,617	5,256.5	1,146,873	573,437
2	16.67%	285,404	1,141,617	2,283,234	1,146,873	1,141,617	15,817.9	2,304,308	1,725,591
3	16.67%	285,404	1,141,617	3,424,850	2,304,308	1,141,617	26,476.6	3,472,401	2,888,355
4	16.67%	285,404	1,141,617	4,566,467	3,472,401	1,141,617	37,233.4	4,651,252	4,061,826
5	16.67%	285,404	1,141,617	5,708,084	4,651,252	1,141,617	48,089.3	5,840,958	5,246,105
6	16.67%	285,404	1,141,617	6,849,701	5,840,958	1,141,617	59,045.1	7,041,620	6,441,289
7	0.00%	-	-		-	-	-	-	-
8	0.00%		-			-	-	-	-
9	0.00%		-			-	-	-	-
10	0.00%		-			-	-	-	-
	100.0%	1,712,425	6,849,701				191,919		
Deferred Interest as % of Total Capital Cost							2.241%		
Loan Amount excluding Capitalized Interest			6,849,701						
Equity funding during construction			1,712,425						
Capitalized interest			191,919						
Total capital cost including interest during construction			8,754,045						

Cost of Generation

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	8,754,045
Fed'l depreciation basis	$	7,440,938
State depreciation basis	$	8,754,045
	0	
	0	-2448074.918
	5	-2407964.239
slope		8022.135917

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6	1,839.6
Cost of Generation ($/mWh)	$305.16	$305.16	$305.16	$305.16	$305.16	$305.16	$305.16	$305.16	$305.16	$305.16
Operating Revenues	**$561,381**	**$561,381**	**$561,381**	**$561,381**	**$561,381**	**$561,381**	**$561,381**	**$561,381**	**$561,381**	**$561,381**
Fixed O&M	$102,407	$104,967	$107,591	$110,281	$113,038	$115,864	$118,760	$121,729	$124,773	$127,892
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$67,236	$68,916	$70,639	$72,405	$74,215	$76,071	$77,973	$79,922	$81,920	$83,968
Land Cost	$39,906	$39,906	$39,906	$39,906	$39,906	$62,172	$62,172	$62,172	$62,172	$62,172
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$2,807	$2,807	$2,807	$2,807	$2,807	$2,807	$2,807	$2,807	$2,807	$2,807
Operating Expenses	**$212,355**	**$216,596**	**$220,943**	**$225,399**	**$229,966**	**$256,913**	**$261,712**	**$266,630**	**$271,671**	**$276,839**
Interest Payment	$193,863	$181,103	$167,194	$152,034	$135,509	$117,497	$97,865	$76,465	$53,139	$27,713
Principal Payment	$141,778	$154,539	$168,447	$183,607	$200,132	$218,144	$237,777	$259,177	$282,502	$307,928
Debt Service	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**	**$335,641**
Tax Depreciation - State	$45,398	$45,350	$45,398	$45,350	$45,398	$32,438	$19,530	$19,526	$19,530	$19,526
Taxable Income - State	$109,765	$118,333	$127,846	$138,598	$150,508	$154,532	$182,275	$198,761	$217,041	$237,303
State Income Tax (benefit)	$6,602	$7,118	$7,690	$8,337	$9,053	$9,295	$10,964	$11,955	$13,055	$14,274
Tax Depreciation - Fed'l	$38,589	$38,548	$38,589	$38,548	$38,589	$27,572	$16,601	$16,597	$16,601	$16,597
Taxable Income - Fed'l	$109,973	$118,017	$126,966	$137,064	$148,264	$150,103	$174,241	$189,734	$206,916	$225,958
Federal Income Tax (benefit)	$38,490	$41,306	$44,438	$47,972	$51,893	$52,536	$60,984	$66,407	$72,420	$79,085
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($45,093)**	**($48,424)**	**($52,128)**	**($56,309)**	**($60,946)**	**($61,831)**	**($71,948)**	**($78,362)**	**($85,475)**	**($93,359)**
Net Cash Flow	***(31,707)***	***(39,279)***	***(47,331)***	***(55,968)***	***(65,171)***	***(93,004)***	***(107,920)***	***(119,252)***	***(131,407)***	***(144,458)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue.

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0 0000%	0.000%	0.000%	0 000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0 000%	0 000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4 461%	4 462%	4.461%	4.462%	4.461%
Exp and Debt Cost	-$547,996	-$552,237	-$556,584	-$561,040	-$565,607	-$592,555	-$597,353	-$602,271	-$607,313	-$612,480
Tax Benefits	$173,339	$170,008	$166,304	$162,123	$157,487	$156,601	$146,484	$140,070	$132,957	$125,073
Subtotal Cost	(374,657)	(382,229)	(390,280)	(398,917)	(408,121)	(435,954)	(450,869)	(462,202)	(474,356)	(487,407)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Difference from B&V										

[redacted]

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	1
Capital Cost before construction financing ($/kW)	$7,777
Capital Cost incl construction financing ($/kW)	$7,951
Fixed O&M ($/kW)	$75
Fixed O&M Escalation	2.5%
Variable O&M ($/MWh)	$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost ($/MBtu)	$0
Fuel Cost Escalation	0.0%
Land ($/yr)	$102,456
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	21%

Financial/Economic Asumptions	
Debt Percentage	35%
Debt Rate	9.0%
Debt Term (years)	20
Construction Debt Percentage	80%
Construction Loan Rate	11.0%
Construction Penod (months)	6
Economic Life (years)	20
% of Plant at 5-yr MACRS	90%
% of Plant at 7-yr MACRS	0%
% of Plant at 15-yr MACRS	5%
% of Plant at 20-yr MACRS	5%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesa	0.500%
Cost of Equity	11%
Discount Rate	9%

Incentives		Cap
PTC ($/MWh)	$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30.0%	
State Tax Credit	35.0%	$ 500,000
No. of Systems (WTGs)	1	

Results	
NPV for Equity Return	$0
IRR of Equity Cash Flows	11%
Levelized Cost of Generation	$447.68

Year		1	2	3	4	5	6	7	8	9	10
Annual Generation (MWh)		1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2
Cost of Generation ($/mWh)		$447.68	$447.68	$447.68	$447.68	$447.68	$447.68	$447.68	$447.68	$447.68	$447.68
Operating Revenues		**$815,323**	**$815,323**	**$815,323**	**$815,323**	**$815,323**	**$815,323**	**$815,323**	**$815,323**	**$815,323**	**$815,323**
Fixed O&M		$75,000	$76,875	$78,797	$80,767	$82,786	$84,856	$86,977	$89,151	$91,380	$93,665
Variable O&M		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance		$47,705	$48,898	$50,120	$51,373	$52,658	$53,974	$55,323	$56,707	$58,124	$59,577
Land Cost		$102,456	$102,456	$102,456	$102,456	$102,456	$118,775	$118,775	$118,775	$118,775	$118,775
Fuel Cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax		$4,077	$4,077	$4,077	$4,077	$4,077	$4,077	$4,077	$4,077	$4,077	$4,077
Operating Expenses		**$229,238**	**$232,305**	**$235,450**	**$238,673**	**$241,976**	**$261,681**	**$265,152**	**$268,709**	**$272,356**	**$276,093**
Interest Payment		$250,452	$245,557	$240,221	$234,405	$228,065	$221,154	$213,622	$205,412	$196,463	$186,708
Principal Payment	$2,782,805	$54,394	$59,289	$64,626	$70,442	$76,782	$83,692	$91,224	$99,434	$108,383	$118,138
Debt Service		**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**
Tax Depreciation - State	$7,950,870	$1,465,942	$2,356,316	$1,434,444	$879,513	$874,608	$457,950	$42,887	$41,432	$41,233	$41,189
Taxable Income - State		($630,309)	($2,018,856)	($1,094,792)	($537,268)	($529,326)	($125,463)	$293,662	$299,769	$305,271	$311,332
State Income Tax (benefit)		($37,913)	($121,434)	($65,852)	($32,317)	($31,839)	($7,547)	$17,664	$18,031	$18,362	$18,727
Tax Depreciation - Fed'l	$6,758,240	$1,246,050	$2,002,869	$1,219,278	$747,586	$743,417	$389,258	$36,454	$35,217	$35,048	$35,011
Taxable Income - Fed'l		($372,505)	($1,543,974)	($813,774)	($373,024)	($366,296)	($49,224)	$282,431	$287,953	$293,094	$298,783
Federal Income Tax (benefit)		($130,377)	($540,391)	($284,821)	($130,559)	($128,204)	($17,228)	$98,851	$100,784	$102,583	$104,574
PTC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC		$2,385,261									
State Tax Credit		$500,000									
Net Taxes (due)		**$3,053,551**	**$661,825**	**$350,673**	**$162,875**	**$160,043**	**$24,775**	**($116,515)**	**($118,815)**	**($120,945)**	**($123,301)**
Net Cash Flow	***(5,168,066)***	***3,334,789***	***939,996***	***625,699***	***434,679***	***428,543***	***273,570***	***128,810***	***122,952***	***117,176***	***111,082***
IRR	***11%***										

MACRS Depreciation Schedules

Cost of Generation Calculator

Concentrating Solar Power Tier 3 Project - COMMERCIAL

All inputs are in blue

100.0000%	5	20.0000%	32.0000%	19.2000%	11.5200%	11.5200%	5.7600%	0.0000%	0.0000%	0 0000%	0 0000%
100.0000%	7	14.2900%	24 4900%	17.4900%	12.4900%	8.9300%	8 9200%	8.9300%	4.4600%	0.0000%	0 0000%
100.0000%	15	5.0000%	9.5000%	8.5500%	7.7000%	6.9300%	6.2300%	5.9000%	5.9000%	5.9100%	5.9000%
100.0000%	20	3.7500%	7.2190%	6.6770%	6.1770%	5.7130%	5.2850%	4.8880%	4.5220%	4.4620%	4.4610%

Exp and Debt Cost		(5,168,066)	-$534,084	-$537,152	-$540,296	-$543,519	-$546,823	-$566,527	-$569,998	-$573,556	-$577,202	-$580,940
Tax Benefits			$3,370,791	$979,065	$667,913	$480,115	$477,283	$342,015	$200,725	$198,425	$196,295	$193,939
Subtotal Cost		(5,168,066)	2,836,707	441,913	127,616	(63,404)	(69,540)	(224,512)	(369,273)	(375,130)	(380,907)	(387,000)
Real Discount Rate		11%										
NPV of EBIT		(3,966,395)										
Effective tax rate		38.91%										
NPV of output		14,503										
Real Level Cost		273										
Level Cost Grossed for Taxes		448	Adjusted for end of year payment level									
Cost in year 1	**$**	**447.68**	**This should match cell C25**									
Diffference from B&V		**0.00%**	**This should be zero**									

CONSTRUCTION FINANCING SCHEDULE

Month	% of Total Capital Cost	Equity Drawdown	Loan Drawdown	Cum Loan Drawdown	Construction Loan Beg. Balance	Additions	Interest	End Balance	Avg. Balance
							11.0%		
1	16.67%	259,219	1,036,875	1,036,875		1,036,875	4,774.2	1,041,649	520,824
2	16.67%	259,219	1,036,875	2,073,749	1,041,649	1,036,875	14,366.6	2,092,890	1,567,270
3	16.67%	259,219	1,036,875	3,110,624	2,092,890	1,036,875	24,047.4	3,153,812	2,623,351
4	16.67%	259,219	1,036,875	4,147,499	3,153,812	1,036,875	33,817.3	4,224,504	3,689,158
5	16.67%	259,219	1,036,875	5,184,373	4,224,504	1,036,875	43,677.2	5,305,056	4,764,780
6	16.67%	259,219	1,036,875	6,221,248	5,305,056	1,036,875	53,627.8	6,395,558	5,850,307
7	0.00%								
8	0.00%								
9	0.00%								
10	0.00%								
	100.0%	1,555,312	6,221,248				174,310		
Deferred Interest as % of Total Capital Cost							2.241%		
Loan Amount excluding Capitalized Interest			6,221,248						
Equity funding during construction			1,555,312						
Capitalized interest			174,310						
Total capital cost including interest during construction			7,950,870						

Cost of Generation

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	
Capital Cost before construction f	
Capital Cost incl construction fina	
Fixed O&M ($/kW)	
Fixed O&M Escalation	
Variable O&M ($/MWh)	
Variable O&M Escalation	
Insurance (% CapEx/year)	
Fuel Cost ($/MBtu)	
Fuel Cost Escalation	
Land ($/yr)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Calculation		
Cap Cost inc Const Financing	$	7,950,870
Fed'l depreciation basis	$	6,758,240
State depreciation basis	$	7,950,870
	0	
	0	-3555462.581
	5	-3515753.008
slope		7941.914558

Year	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2	1,821.2
Cost of Generation ($/mWh)	$447.68	$447.68	$447.68	$447.68	$447.68	$447.68	$447.68	$447.68	$447.68	$447.68
Operating Revenues	**$815,323**	**$815,323**	**$815,323**	**$815,323**	**$815,323**	**$815,323**	**$815,323**	**$815,323**	**$815,323**	**$815,323**
Fixed O&M	$96,006	$98,406	$100,867	$103,388	$105,973	$108,622	$111,338	$114,121	$116,974	$119,899
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$61,067	$62,593	$64,158	$65,762	$67,406	$69,091	$70,819	$72,589	$74,404	$76,264
Land Cost	$159,623	$159,623	$159,623	$159,623	$159,623	$248,688	$248,688	$248,688	$248,688	$248,688
Fuel Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Excise Tax	$4,077	$4,077	$4,077	$4,077	$4,077	$4,077	$4,077	$4,077	$4,077	$4,077
Operating Expenses	**$320,773**	**$324,700**	**$328,725**	**$332,850**	**$337,079**	**$430,478**	**$434,921**	**$439,475**	**$444,142**	**$448,927**
Interest Payment	$176,076	$164,487	$151,854	$138,085	$123,076	$106,717	$88,886	$69,449	$48,263	$25,171
Principal Payment	$128,770	$140,360	$152,992	$166,761	$181,770	$198,129	$215,961	$235,397	$256,583	$279,676
Debt Service	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**	**$304,846**
Tax Depreciation - State	$41,233	$41,189	$41,233	$41,189	$41,233	$29,462	$17,738	$17,734	$17,738	$17,734
Taxable Income - State	$277,241	$284,947	$293,511	$303,198	$313,934	$248,666	$273,778	$288,664	$305,178	$323,490
State Income Tax (benefit)	$16,676	$17,140	$17,655	$18,237	$18,883	$14,957	$16,468	$17,363	$18,356	$19,458
Tax Depreciation - Fed'l	$35,048	$35,011	$35,048	$35,011	$35,048	$25,043	$15,078	$15,074	$15,078	$15,074
Taxable Income - Fed'l	$266,750	$273,986	$282,041	$291,139	$301,236	$238,128	$259,971	$273,961	$289,483	$306,693
Federal Income Tax (benefit)	$93,362	$95,895	$98,714	$101,899	$105,433	$83,345	$90,990	$95,887	$101,319	$107,342
PTC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal ITC										
State Tax Credit										
Net Taxes (due)	**($110,038)**	**($113,035)**	**($116,369)**	**($120,136)**	**($124,316)**	**($98,302)**	**($107,458)**	**($113,250)**	**($119,675)**	**($126,800)**
Net Cash Flow	***79,665***	***72,742***	***65,383***	***57,490***	***49,082***	***(18,304)***	***(31,902)***	***(42,248)***	***(53,342)***	***(65,251)***

IRR

MACRS Depreciation Schedules

Cost of Generation

All inputs are in blue

100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.000%	0.000%	0.000%	0.000%	0.000%
100.0000%	5.9100%	5.9000%	5.9100%	5.9000%	5.9100%	2.950%	0.000%	0.000%	0.000%	0.000%
100.0000%	4.4620%	4.4610%	4.4620%	4.4610%	4.4620%	4.461%	4.462%	4.461%	4.462%	4.461%

Exp and Debt Cost	-$625,619	-$629,546	-$633,571	-$637,697	-$641,925	-$735,324	-$739,767	-$744,321	-$748,989	-$753,773
Tax Benefits	$207,202	$204,205	$200,871	$197,104	$192,924	$218,938	$209,782	$203,990	$197,565	$190,440
Subtotal Cost	(418,418)	(425,341)	(432,700)	(440,593)	(449,001)	(516,386)	(529,985)	(540,331)	(551,424)	(563,334)
Real Discount Rate										
NPV of EBIT										
Effective tax rate										
NPV of output										
Real Level Cost										
Level Cost Grossed for Taxes										
Cost in year 1										
Diffference from B&V										

[redacted]

Attachment 7

Honolulu County, HI Land For Lease – 33 Results Found

Start a New Search

Refine Your Search

Listing Type
- ○ For Sale
- ◉ For Lease

Location
HI

Property Types
- ☐ Industrial
- ☐ Office
- ☐ Retail
- ☐ Shopping Center
- ☑ Land
- ☐ Special Purpose

Show Property Subtypes

Space Avail. Range (SQFT)
0 to

Lease Rate Range ($/SF)
0.00 to
◉ Annual ○ Monthly

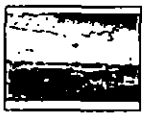
Keywords

Date Entered
Any Date

Sort By Default | Show Rent As Per Year | Page 2 of 2

Line Item Report | Summary Report | Detailed Report | Map Properties | Watch Properties

Premium Listings - LoopNet Premium Members Receive Priority Placement - UPGRADE NOW!

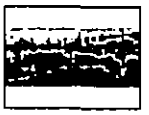


91-150 Hanua Street
Kapolei, HI
The property consists of 2 parcels located at 91-150 Hanua Street in James Campbell Industrial Park, Oahu's largest heavy industrial park. The Park. .
Colliers Monroe Friedlander

108,464 - 308,840 SF
$2.04 /SF/Year
2 Spaces
Industrial (land)

45-1002 Kamehameha Highway
Kaneohe, HI
This vacant land parcel is located directly on Kamehameha Highway in the heart of Kaneohe. Unprecedented visibility with the possibility of a long...
Colliers Monroe Friedlander

18,934 SF
$12.68 /SF/Year
1 Space
Retail (land)



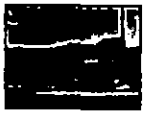
Pier 38
Honolulu, HI
PIER 38 Domestic Commercial Fishing Village is located along Nimitz Highway across from Home Depot, Best Buy and Weyerhauser. The Owners Association...
Sofos Realty Corporation

60,000 SF
$9 /SF/Year
1 Space
Commercial/Other (land)

Photo Not Provided

Mill Town Center
Waipahu, HI
I-1 zoned vacant lot in

18,201 SF
$2.40 /SF/Year
1 Space
Industrial (land)



Kapolei Business Park
Kapolei, HI
I-2 Industrial vacant lot.

20,000 - 126,280 SF
$1.56 /SF/Year
1 Space
Industrial (land)

1.57 Acres for Ground Lease
Pearl City, HI
LAST PARCEL!! LOT C: 68,430 SF (1.57 acres) of IMX-1 zoned vacant land available for Long-Term Ground Lease in Pearl City. Landlord would also...
Marcus & Associates Inc.

68,430 SF
$4.80 /SF/Year
1 Space
Commercial/Other (land)

Basic Listings - Premium Members can view all Basic Listings below - UPGRADE NOW!

Photo Not Provided

1819 Republican St.
Honolulu, HI
Crushed concret yard for storage or parking.

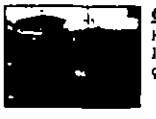
4,000 SF
$6 /SF/Year
1 Space
Industrial (land)

Alahao Industrial Center
Honolulu, HI
Exclusive use of loading docks and and enclosed yard area.
Sofos Realty Corporation

9,500 - 10,000 SF
$4.80 - $13.80 /SF/Year
2 Spaces
150,000 SF Bldg
Warehouse

Marina Business Center
Honolulu, HI
Manna Business Center offers Offices, Storage and Yard (Secured and Paved)
CB Richard Ellis

412 - 17,000 SF
$4.80 - $36.91 /SF/Year
6 Spaces
10,897 SF Bldg
Industrial (land)



686 Bannister St.
Honolulu, HI
IMX-1 Zoned in Kalihi available for lease immediately. level lot, great for base yard,storage, contractor,etc... Maybe divisable in 2

3,350 - 6,709 SF
$6 /SF/Year
1 Space
Industrial (land)

sections...

Airport Trade Center
Honolulu, HI
Mixed use property immediately adjacent to the Honolulu International Airport. Approx. 3 acres of roof top parking available. Easy access to H1 &...
Marcus & Associates Inc.

40,000 - 125,567 SF
$3 /SF/Year
1 Space
Industrial (land)

91-1085 Enterprise Avenue
Kapolei, HI
Total of 4 Acres of Land paved and fenced. There is an office for rent separately with wireless hook-up, kitchen, and Bathrooms.
CB Richard Ellis

1,000 - 108,900 SF
$3.60 /SF/Year
1 Space
Industrial (land)

Investment
Waianae, HI
$16,500.00-Locks you into a 15 Year lease-Commercial Zoned 3,500 Sq.Ft. Vacant Lot Located in the Heart of Waianae Town!

3,500 SF
$2.74 /SF/Year
1 Space
Commercial/Other (land)

◀ Page: 1 2

Honolulu County, HI Land For Lease – 33 Results Found

Start a New Search

Refine Your Search

Listing Type
- ( ) For Sale
- (•) For Lease

Location
Honolulu County, HI

Property Types
- [ ] Industrial
- [ ] Office
- [ ] Retail
- [ ] Shopping Center
- [x] Land
- [ ] Special Purpose

Show Property Subtypes

Space Avail. Range (SQFT)
0 to

Lease Rate Range ($/SF)
0.00 to
(•) Annual ( ) Monthly

Keywords

Date Entered
Any Date

Email me when new listings match this search
Sort By Default | Show Rent As Per Year | Page 1 of 2 NEXT PAGE ▶

[ ] Line Item Report | Summary Report | Detailed Report | Map Properties | Watch Properties

Showcase Properties - Receive Top Placement - Learn More

545 Lagoon Drive — **22,307 SF**
Honolulu, HI — $7.20 /SF/Year
Prime opportunity to lease property that has not been available in over ten years!! 22,307sf paved lot in the Airport area on the corner of Lagoon... — 1 Space
Colliers Monroe Friedlander — Industrial (land)

Premium Listings - LoopNet Premium Members Receive Priority Placement - UPGRADE NOW!

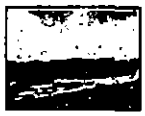
Photo Not Provided

Kaneohe Industrial-contrators office w/open yd — **550 SF**
Kaneohe, HI — Negotiable
$1,100/month. Includes all CAM expenses except electricity(paid by tenant) contractors: 550 sq.ft of office with 1,850 sq.ft. of open yard space — 1 Space, 550 SF Bldg, Flex Space

1165 N. King Street — **2,040 SF**
Honolulu, HI — $12 /SF/Year
IMX Zoned. Sewer Lateral direct to property. — 1 Space
Grubb & Ellis | CBI, Inc. — Industrial (land)

91-238 Kalaeloa Blvd — **3,386 - 25,000 SF**
Kapolei, HI — $1.80 - $9 /SF/Year
Concrete tilt-up building that includes a large showroom with 5 private offices & glass frontage on Kalaeloa Blvd. and a 6,374 square foot warehouse... — 3 Spaces, 34,500 SF Bldg, Flex Space
Sofos Realty Corporation

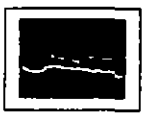
220 Puuhale, Unit A5 — **2,895 - 11,700 SF**
Honolulu, HI — $4.80 - $14.40 /SF/Year
Very Clean warehouse, high end offices with A/C, 3 phase power, insulated ceiling, skylights, 18 foot ceiling, 2 roll-up doors (12'x14' and 8'x14'). — 2 Spaces, 2,895 SF Bldg, Warehouse
CB Richard Ellis



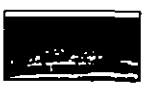
Kaomi Loop — **146,797 SF**
Kapolei, HI — $1.80 /SF/Year
Large yard space available for lease in Campbell Industrial Park. This 146,797 SF (3.37 acres) property is zoned I-2. Utilities to the property are... — 1 Space, Industrial (land)

1436 South Beretania Street — **14,421 SF**
Honolulu, HI — $4.20 /SF/Year
Honolulu Vacant Land. Zoning is BMX-3. Adjacent property, 1450 South Beretania Street, also available. See both Property flyers below. Tenant... — 1 Space, Commercial/Other (land)
CB Richard Ellis

Salt Lake - Bougainville Industrial land — **42,986 SF**
Honolulu, HI — $2.79 /SF/Year
Former Costco Wholesale employee parking lot. Land area of approx. 42,986 sq. ft. IMX-1 zoned (mixed use industrial). Property is improved as a... — 1 Space, Industrial (land)
Sofos Realty Corporation



Kenai Industrial Park — **40,946 SF**
Kapolei, HI — Negotiable
Rare, Fee Simple industrial zoned lot. One of the lower priced industrial lots on Oahu. Water and electric to lot. Surrounded by security fencing... — 1 Space, Industrial (land)
CB Richard Ellis



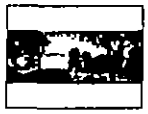
Makaha Marketplace — **200 - 12,535 SF**

Walanae, HI
Oahu's lowest cost retail/office space across from Mauna Lahilahi Beach at the corner of Farrington Hwy. and Makaha Valley Road, on the way to the...

$3 - $22.20 /SF/Year
10 Spaces
Neighborhood Center

222 Ahui Street
Honolulu, HI
Ground Lease. Currently occupied by Cutter Used Cars and formerly Medfly site Ideally situated at the gateway to Kakaako. The unusually large...
CB Richard Ellis

132,422 SF
Negotiable
1 Space
Retail (land)



Gentry Business Park
Waipahu, HI
25,338 square feet of ground lease/pad site available. Ideally suited for a fast food restaurant, financial, retail or other I-2 use. The two street...
Colliers Monroe Friedlander

25,338 SF
$3.51 /SF/Year
1 Space
Retail (land)

Mill Town Center
Waipahu, HI
For lease by owner. A 65-year ground lease, having known rent step-ups for the first 30 years, will be offered via Public Auction. Upset rent is...

49,736 SF
$2.72 /SF/Year
1 Space
Industrial (land)

Available for Lease-Ewa Feedlot
Kapolei, HI
For lease by owner. Located in the James Campbell Industrial Park in the City of Kapolei, one of the fastest growing regions in the State of Hawaii...

4,791,600 SF
Negotiable
1 Space
Industrial (land)

Saddle City
Waimanalo, HI
2 acres located in Saddle City, Waimanalo. Ideal usage is for a plant nursery. Zoning restrictions limit any other commercial uses. Please call with...

87,120 - 2,147,483,647 SF
$0.34 /SF/Year
1 Space
Commercial/Other (land)

94-1042 Ka Uka Blvd
Waipahu, HI
Fenced and graveled yard area. Can be leased in smaller increments. 2-3 year term available. Entries on Ka Uka Blvd. and Ukee St.
Marcus & Associates Inc.

20,000 - 58,300 SF
$3 /SF/Year
1 Space
Industrial (land)

Campbell Industrial Park
Kapolei, HI
This property is available for lease or for sale.
CB Richard Ellis

186,436 SF
$1.80 /SF/Year
1 Space
Industrial (land)

98-151 Lipoa Place
Aiea, HI
27,744 square feet of A-1 zoned land available for lease in the Aiea district. This gated lot consists of a 7,150 SF building nestled between low...
Colliers Monroe Friedlander

27,744 SF
Negotiable
1 Space
Industrial (land)

98-121 Lipoa Place
Aiea, HI
17,266 square feet of A-1 zoned land available for lease in the Aiea district. This unique property is nestled between low density apartments along...
Colliers Monroe Friedlander

17,266 SF
Negotiable
1 Space
Industrial (land)

902 Industrial Road
Honolulu, HI
A rare mixed use (IMX-1) lot located in the heart of town and open to a wide variety of users. Property provides for an excellent staging/storage...
Colliers Monroe Friedlander

3,195 SF
$6 /SF/Year
1 Space
Industrial (land)

Page: 1 2 Next Page ▶

Attachment 8

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the PUBLIC UTILITIES COMMISSION Instituting a Proceeding to Investigate the Implementation Of Feed-in Tariffs	)	PUC DOCKET NO. 2008-0273

DECLARATION OF BRANDT ANDREW BLANKEN

I, Brandt Andrew Blanken declare and say:

1. I am the President of Fallbrook Capital Securities Corporation, a FINRA broker/dealer which has brokered private placements in partnerships that provided federal and Hawaii state tax credits to institutional and high net worth investors through investments in renewable energy projects.

2. Based upon my experience during the last several years of reviewing and/or working on financing a number of renewable energy projects in the State of Hawaii, I have observed that non-off-taker investors in renewable energy projects, including without limitation, institutional and private individual investors, have generally expected a return on their equity investments to fall between 15% and 20%, with the returns for most large-scale projects falling at the higher end of said range and certain investors demanding even higher rates of return.

3. Many of my clients have little or no Hawaii state tax liability. The recent changes in legislation that provided for a cash refund in lieu of the Hawaii Renewable Energy Investment Tax Credit makes investment in Hawaii renewable energy projects much more attractive to my

clients than it otherwise would be. Investors have told me that without the refund that they would not invest in these deals as the returns would not be attractive enough.

4. This declaration is based upon my personal knowledge and, where stated, upon my reasonable belief and information and I am competent to testify as to the matters stated in this declaration.

I, Brandt Andrew Blanken, do declare under penalty of law that the foregoing is true and correct.

DATED: Los Angeles, California, May 12, 2010.

Brandt Blanken

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the PUBLIC UTILITIES COMMISSION Instituting a Proceeding to Investigate the Implementation Of Feed-in Tariffs	)	*PUC DOCKET NO. 2008-0273*

DECLARATION OF MILES KUBO

I, MILES KUBO declare and say:

1. I am the Chief Operating Officer of Energy Industries, LLC which offers professional energy efficiency studies, lighting and Heating, Ventilation, and Air Conditioning ("HVAC") retrofits, and solar energy installations.

2. Act 154 (09), SB 464, signed on June 25, 2009 amended the existing renewable energy tax law from 1990 to allow individual and corporations to receive a 24.5% tax refund when their earned tax credits exceed their state income tax for the year. Prior to Act 154, renewable energy project development was limited by the lack of investors with a significant Hawaii State tax liability to take advantage of the entire 35% credit. With the enactment of Act 154, I have observed additional mainland investors and financing entities starting to develop more renewable energy projects in Hawaii due to their ability to utilize the 24.5% refundable credit. This refundable credit has allowed some of the Nation's top PPA providers, such as Solar Power Partners and Solar City, to start development of new solar power projects in Hawaii. Prior to July 2009, Solar Power Partners had only financed one solar power purchase agreement project since they could not take advantage of the 35% State credit. With the refundable credit,

Solar Power Partners is now developing several new projects in Hawaii. We continue to see Hawaii investors take full opportunity of the 35% tax credit, but for some of the larger power purchase agreements between the national project developer and local users of solar energy, it is essential to have available the refundable 24.5% investment tax credit.

3. This declaration is based upon my personal knowledge and, where stated, upon my reasonable belief and information and I am competent to testify as to the matters stated in this declaration.

I, MILES KUBO, do declare under penalty of law that the foregoing is true and correct.

DATED: Honolulu, Hawaii, May 10, 2010.

MILES KUBO

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the	)	
	)	
PUBLIC UTILITIES COMMISSION	)	
	)	
Instituting a Proceeding to	)	
Investigate the Implementation Of	)	
Feed-in Tariffs	)	
	)	PUC DOCKET NO. 2008-0273
	)	

DECLARATION OF TAL ZIV

I, Tal Ziv declare and say:

1. I am the VP of Operations of Sopogy, Inc., a renewable energy technology company. .

2. Based upon my experience during the last two years of reviewing and/or working on financing a number of renewable energy projects in the State of Hawaii, I have observed that non-off-taker investors in renewable energy projects, including without limitation, institutional and private individual investors, have generally expected the return on their equity investments to fall between 15% to 20%, with the returns for most large-scale projects falling at the higher end of said range and certain investors demanding even higher rates of return.

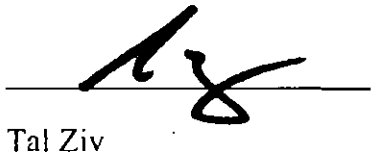
3. Since the enactment of Act 154 in 2009, which amended Hawaii Revised Statutes Section 235-12.5 to allow taxpayers making investments in solar energy installations to receive a 24.5% tax refund in lieu of the 35% Hawaii Renewable Energy Investment Tax Credit ("HI REITC") when such 35% HI REITC exceeds their state income tax liability, I have observed increased investments in solar energy projects in Hawaii. I believe this increase is primarily due to the broader availability of the HI REITC due to the amendment made by Act 154 and know a

significant number of investors are taking the HI REITC in the form of a tax refund rather than a tax credit.

4. This declaration is based upon my personal knowledge and, where stated, upon my reasonable belief and information and I am competent to testify as to the matters stated in this declaration.

I, Tal Ziv, do declare under penalty of law that the foregoing is true and correct.

DATED: Honolulu, Hawaii, May 11, 2010.



Tal Ziv

Attachment 9

LETTERS OF CREDIT AND DOCUMENTARY COLLECTIONS
SCHEDULE OF SERVICES

LETTER OF CREDIT – IMPORT

Issuance
- Air Mail $80
- Preliminary Wire ..... $80 + $30 wire fee
- Full Wire ..... $80 + $50 wire fee

Amendment
- Air Mail $50
- Wire ..... $50 + $20 wire fee

Cancellation/Unused $60

Settlement
- A/S 1/4%
- Minimum ..... $60 (No Maximum)
- Acceptance ..... 2.50% p.a.
- Minimum $60

Stand-by Letter of Credit
- Issuance ..... $75 mail; $100 wire
- Amendment ..... $70 mail; $75 wire
- Commitment Fee ..... 1.50% per annum ($150 minimum)
- Drawing Fee (additional) ..... 1/4% ($60 minimum)

Interest on Funds
- Advanced for L/C Settlements ..... In case of Yen denomination (At Sight) (Japan's prime rate + 3%) x no. of days

LETTER OF GUARANTY CHARGES

Under L/C Base $60

Under Collection Base ..... 1/8% each 3 month period ($60 minimum)

LETTER OF CREDIT – EXPORT

Advising Commission
- New Letter of Credit ..... $30 (pre-advise) $40 (regular)
- Amendment $30

Transfer 1/4%
- Minimum ..... $150 + $50 wire fee

Negotiation
- Debit due to account 1/8%
  - Minimum $50
- Reimbursement from other banks 1/4%
  - Minimum $60
  - Mail Interest ... (same as applicable to dom. loan)

Postage $10
- Express (Courier Service) ..... At Cost

Assignment of Proceeds
- Set Up Fee $50
- Each Payment $30

OUTGOING COLLECTION

Documentary
- Commission 1/4%
  - Minimum $25
  - Maximum $100
- Postage $10
- Unpaid Item $15

Express (Courier Service) ..... At Cost

INCOMING COLLECTION

Documentary
- Commission 1/4%
  - Minimum $25
  - Maximum $100

Wire Charge
- Domestic $10
- International $12

This SCHEDULE OF SERVICES covers the most commonly used services and their corresponding charges. For information on items not shown, visit any Central Pacific Bank branch or call our Customer Service Center at (808) 544-0500 or toll-free at (800) 342-8422 from the neighbor islands or continental U.S.

CENTRAL PACIFIC BANK

Attachment 10

CENTRAL PACIFIC BANK

P.O. Box 3590
Honolulu, HI 96811-3590
Telephone (808) 544-0500

May 20, 2010

Tim Wong
Vice President and
Chief Financial Officer
Sopogy
2660 Waiwai Loop
Honolulu, Hawaii 96819

Re: Standby Letter of Credit

Dear Mr. Wong:

Thank you for your inquiry on Standby Letters of Credit. In accordance with your request, listed below are the types of accounts the bank accepts as collateral to issue a Standby Letter of Credit and the balance to be maintained in the account, I've listed $100,000 as an example:

1) Savings Account*
2) Time Certificate Deposit*
3) Minimum account balance required $105,263, based on 95% LTV

*If title of the account being pledged is not the same as the SBLC applicant, owner of deposit account must sign Security Agreement as pledgor.

Should you have any questions, please call me at 544-3662.

Sincerely,

Clara E. Takakuwa-Medina
Assistant Vice President
LOC/DOC/File Management

CERTIFICATE OF SERVICE

I hereby certify that I have on this date served a copy of Sopogy, Inc. Comments on Proposed Schedule Feed-In Tariff Tier 3 Tariffs and Agreement upon the following parties, by causing a copy hereof to be hand delivered, e-mailed, or mailed, U.S. postage prepaid, and properly addressed to each such entity.

DEAN NISHINA EXECUTIVE DIRECTOR Department of Commerce and Consumer Affairs Division of Consumer Advocacy P.O. Box 541 Honolulu, HI 96809	2 Copies Via Hand Delivery
DEAN MATSUURA MANAGER REGULATORY AFFAIRS HAWAIIAN ELECTRIC COMPANY, INC. P.O. Box 2750 Honolulu, HI 96840-0001	Electronically transmitted dean.matsuura@heco.com kevin.katsura@heco.com scott.seu@heco.com dan.brown@heco.com
JAY IGNACIO PRESIDENT HAWAII ELECTRIC LIGHT COMPANY, INC. P.O. Box 1027 Hilo, HI 98627-1027	Electronically transmitted Jay.ignacio@helcohi.com
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Dated: Honolulu, Hawaii, May 20, 2010

PAMELA ANN JOE, ESQ.
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